Clinical Remarks ON SOME IMPROVEMENTS IN THE METHOD OF LOCAL ANALGESIA.

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HAVING for some five or six years past been in the habit of employing local analgesia for surgical operations of considerable magnitude the merits and faults of the procedure are tolerably familiar to me, and in spite of several drawbacks which attach to this method of abolishing pain there can, I think, be little doubt that it has a future before it, and when the principles which underlie it are well understood I believe it will be widely employed. But this last condition appears up to the present to be imperfectly fulfilled and consequently much disappointment has often resulted.

I should like now to mention some of my own experiences with one or two forms of local anæsthesia and to sketch the principles upon which they have been employed, their merits and demerits, and the details to be observed in their use. In the first place it may be remarked that the dangers associated with the injection of cocaine appear to limit its use so much as to make it unsuitable for general employment in the larger and therefore longer operations of surgery. And though I have tested its efficiency in former years I personally have abandoned it of late in favour of β-eucaine which is less dangerous and gives results which are most satisfactory.

In using this agent, however, several points have to be specially borne in mind. In the first place the principle established by Corning about 23 years ago in America that the infiltration of the trunk of a sensory or mixed nerve with one of these bodies in solution abolishes its sensation down to its most minute terminal distribution must be constantly kept in view. Next it must never be forgotten that the areas supplied by sensory nerves almost, if not always, overlap and that to render any part insensible to pain all its sensory nerves must be brought under the influence of the analgesic compound. This is not always an easy matter, for although our general anatomical knowledge of the position of the trunk of a nerve may be fairly accurate a slight deviation from its usual course may prevent our actually striking it with the point of the injecting needle. And when three or four different nerves supply any particular region such as the groin one or other may not be reached by our injection and analgesia will be imperfect. Again there are mechanical and physical difficulties in infiltrating all the nerves supplying an extensive field of operation. Simply to inject the whole area so as to reach all its nerves would mean in many cases the use of much more of the toxic drug than is necessary and indeed in some so much as to be dangerous. Further the substance employed may be only diffused through the tissues to a limited extent and so each injection may fail to overlap those which are adjacent. It is for this reason that we aim at reaching the trunks of the nerves themselves, remembering Corning's discovery.

From all this it must follow that the less poisonous our analgesic agent is the more freely and widely we may employ it if necessary and therefore the more likely we are to reach the nerves by one or other of our several punctures. But again it must not be forgotten that isotonic fluids injected into the living tissues are rapidly absorbed by the lymphatics or washed away by the circulating blood, and moreover some with analgesic properties are more transient in their effects than others so that no operation lasting more than some 20 minutes or so can be performed without a constant re-infiltration of the tissues or nerves. And besides all this it has been shown that the rapid absorption of cocaine, for instance, produces a far more dangerous effect than when it is slowly taken up from the area infiltrated. Indeed, there seem to be strong reasons for the belief, based upon the experiments of many observers, that cocaine, β-eucaine, and their allies are actually taken up into the protoplasm of all tissue cells as well as the nerves when injected hypodermically and that if retained there long enough are broken up and eliminated as material no longer possessing any general toxic properties.

Having now used β-eucaine for several years in scores of cases I have been able to see that for the larger operations it has the following drawbacks though with practice they may be overcome:—1. It is not easy to hit off a given nerve trunk with the injecting needle through the skin and often through a thick layer of fat. This difficulty has been overcome occasionally by a second infiltration of the nerve when it has been exposed by dissection. But the inconvenience of this modification of the procedure must be obvious where a field of operation is supplied by several nerves. 2. This being so it has been necessary to infiltrate the whole neighbourhood of the nerve trunks and to trust to the wide diffusion of the analgesic agent to reach them. This has meant the use of a rather large quantity of the medium where a region supplied by a number of nerves has to be rendered insensitive. And though up to three grains of β-eucaine may be safely injected (= 100 cubic centimetres of a solution of 2 in 1000) it is more or less cumbrous and an artificial œdema is produced which somewhat, though not always, too greatly obscures the anatomical details in operating. Moreover, the agent injected is rapidly absorbed in diffusing itself and its action cannot be counted on for more than 20 minutes or so.

Having recognised these drawbacks I was very much interested in reading some observations by Dr. Braun of Leipsic on a method of overcoming them and began to employ it in March last and I have since used it in numerous cases of long operations with very great satisfaction. It is based upon an old experience that anything *which retards or diminishes the circulation of the blood in a part infiltrated* with one or another analgesic agent *enhances the potency of the latter.* This is the case with cold, or, as was shown long ago by Oberst, when a constricting band is placed round an accessible part, such as the finger, the wrist, or the ankle, before the infiltration is begun. Here a small injection of β-eucaine will produce, as anyone can prove on himself, a far greater effect than a much larger dose injected into a part not chilled or constricted and the effect lasts as long as the constriction slows the circulation.

The observations alluded to aimed at investigating whether the diminution of the stream of blood in a part produced by the injection of adrenalin would not have the same result. A very small quantity of the latter was therefore injected with the solution of β-eucaine (or cocaine) into the observer's own arm in the first instance and subsequently into those of numerous patients. It was found that after the lapse of about 20 minutes the part was quite blanched and wholly insensitive to pain and that this loss of feeling lasted on an average for about two hours. It was found that adrenalin alone used in the same way had no analgesic effect.

Having tested this method on my own arm with the proportions of adrenalin and β-eucaine recommended and having observed the effects claimed I have been employing the procedure for several months past with results far superior to those produced by β-eucaine alone. The most convenient way I find to prepare the solution is as follows. Powders of β-eucaine and pure chloride of sodium sufficient to make 100 cubic centimetres (= 3½ ounces) of the solution are kept in thick glazed paper ready for use. The amounts in each of them are β-eucaine 0·2 gramme (= 3 grains) and pure chloride of sodium 0·8 gramme (= 12 grains). 100 cubic centimetres of boiling distilled water are measured off and to this the contents of one of the papers are added and then one cubic centimetre of Messrs. Parke, Davis and Co.'s solution of adrenalin chloride when the fluid is cool. As the adrenalin preparation is of the strength of 1 in 1000 we now have 100 cubic centimetres of normal saline solution with 2 in 1000 β-eucaine and 1 in 100,000 of adrenalin chloride in it—i.e., distilled water, 100 grammes; pure chloride of sodium, 0·8 gramme; β-eucaine, 0·2 gramme; and adrenalin chloride, 0·001 gramme.

The best way practically to measure out the requisite amount of the adrenalin solution from the one-ounce bottle in which it is sold without exposing what remains to the action of air and light, which spoils it, is simply to loosen the stopper and to drop out of it 18 drops into the already boiled water and then to stopper it tightly again. I have measured it drop by drop into a standard cubic centimetre

measure very often and I find that taken from the lip of the bottle from 15 to 18 drops go to the cubic centimetre on the average. The form of the lip of the bottle may affect this and therefore a standard cubic centimetre measure should be at hand to test each bottle in the first instance, but when it has been once seen how many drops go to the cubic centimetre the glass measure may be discarded. Before using any bottle of the solution it should be held up to the light in order to see that it is quite clear and free from precipitate. If it is not it is spoiled and must not be used. But drawn on as above and at once re-stoppered it will keep well for several weeks; exactly how long is, I believe, not yet known. If all the 100 cubic centimetres of the solution prepared as above were injected at one sitting into a patient the amount of the drugs would be well within the limits of safety. But, as a matter of fact, I have found that an extensive operation can be done with 50 or 60 cubic centimetres.

There are many excellent syringes with which the infiltration can be made but that which appears to offer the greatest advantages is a very simple one made of glass and metal with rubber washers. It can be boiled in plain water *without alkaline additions* for sterilisation and comes to pieces and can be put together by a turn of the hand. It holds 10 cubic centimetres of the fluid and is accurately graduated. I have had adapted to it Frienstein's needles which add much to its convenience. The solution as above is left in the Jena glass beaker in which it has been boiled and is carefully covered with a glass dish. The beaker should stand in warm water to keep it at blood heat.

In describing an operation carried out under the influence of this analgesic agent no better example can be taken than that of a radical cure of an inguinal hernia. The operation is not a short one if carefully done; the region to be dealt with is a very sensitive one and primary union is of the first importance. Besides all this the prevention of all vomiting after operation is highly desirable.

In infiltrating the field of this operation four nerves at least have to be taken into consideration. These are the ilio-inguinal and ilio-hypogastric, the genital branch of the genito-crural, and the inferior pudendal branches of the lesser sciatic. The superficial perineal nerve from the pudic will also probably give twigs to the parts to be manipulated in the operation.

To reach all these nerves with the injected fluid the *modus operandi* which I have found to be the best is as follows. The hernia is first reduced and the index finger is thrust with the skin into the external ring as far as possible. Along this finger the needle is entered and the inguinal canal is filled with 10 cubic centimetres of the solution, an endeavour being made to inject it all round the neck of the sac so as to reach at one spot or other the genital branch of the genito-crural nerve. The needle is then entered at the external end of the line of incision in the skin and is made to infiltrate the *superficial* layers of the latter down to the root of the scrotum, making the resulting weal at least an inch longer at each end than the incision is to be. Again, the needle is entered about half an inch to the inside of the anterior superior spine of the ilium and pressure on the piston is at once begun slowly as it is thrust towards the ilio-inguinal nerve to the depth of about one inch in moderately fat patients. The needle should then be partly withdrawn and be thrust in different directions towards the usual course of the nerve trunk until the whole 10 cubic centimetres have been used up. The same manœuvre is repeated at a point about one inch above the middle of Poupart's ligament where the ilio-hypogastric nerve is most conveniently met. Then the leg is raised and another syringeful is injected along the ramus of the pubis and the root of the scrotum or labium. Thus about 50 cubic centimetres of the solution have been used up, equalling one and a half grains of β-eucaine and half a milligramme of adrenalin chloride.

It is necessary now where adrenalin has been used to wait for 20 minutes from the last injection for the full effect of the agent to develop. This time can be employed on some other small operation or in finally sterilising the hands and preparing the patient for operation, or two or three shorter cases can be infiltrated at the same time. At the end of the 20 minutes the whole field of operation ought to be blanched and the primary artificial œdema will have almost disappeared. If the skin is not white and bloodless the solution is bad. The part to be operated on can now be tested with the point of a needle and will usually be found to be insensitive to pricks though not to the touch, for, be it remembered, this is analgesia, *not* anæsthesia in its fullest meaning. If not quite insensitive a few minutes longer may be allowed to elapse. Then the incision may be made with confidence that no pain will be felt. The absence of oozing of blood is the first thing noticed. Only the larger vessels bleed at all. When the sac is exposed it should be dissected cleanly without any dragging. If it is much pulled upon a strain is put upon the parietal peritoneum which possibly may not have been reached by the eucaine and may therefore still be sensitive, while the sac itself may be pinched in forceps, cut, or stitched without producing any pain provided the infiltration round its neck has been thoroughly done. In the female it must also be remembered that the round ligament is specially sensitive and its nerve-supply from the genital branch of the genito-crural nerve must be adequately treated with the solution. The same may be said of some of the components of the spermatic cord. But it is possible to render both these structures perfectly insensitive and some of my last cases illustrate this admirably. Two recent ones were those of neurotic men with tubercle of the lung and hæmoptysis as well as tuberculous testes. The organs were disorganised and very sensitive. After infiltration by this method castration was performed without any pain. Their faces were carefully watched while the cord was dissected out; its components were tied and divided and no sign of suffering was observed. One of them in leaving the theatre called back his thanks that we had given him the choice of this method.

The whole success of the procedure depends upon a mastery of the principles and practice in the details. It is not enough to inject a certain amount of the analgesic fluid under the skin generally. Due regard must be had to the position and course of the nerves supplying the structures to be dealt with, and in injecting around or into the nerves the aim should be to make each area of diffusion overlap the preceding one. This diffusion is fortunately rendered more effectual by the use of the adrenalin compound which, by slowing the circulation through the part, prevents the eucaine from being rapidly washed away.

Of course, what is possible in the groin, which is proverbially sensitive, ought to be equally so for other parts and is so if the same lines are worked upon. In operations on the veins, for instance, the method is simplicity itself; and in the hand and foot numerous operations can be done without any pain. In all ordinary cases of strangulated hernia the operation can be done painlessly if the mesentery has not to be dragged upon. This is an enormous gain to aged patients who suffer so much, as a rule, from prolonged general anæsthesia. I have quite recently operated on two such cases with perfect results. One was in a feeble woman, aged 70 years, with extensive bronchitis, a dry tongue, and five days of stercoraceous vomiting. Both are now quite well.

As to the general question when to use chloroform or ether and when a local anæsthetic each surgeon, of course, must decide for himself. To me it appears desirable to give the patients a choice after putting the facts before them. One cannot forget that for many operations nowadays the chief danger is the general anæsthetic, whether we regard this as small or great. But with old and feeble people when it is a question, for instance, of a strangulated hernia or colotomy, or when a younger patient is suffering from phthisis or empyema, I feel justified in urging them strongly to have the local anæsthesia or simply to take it for granted that they will and to say nothing about it to them, having chloroform at hand in case at one point or other a short inhalation may be necessary.

In all cases much may be done in distracting their attention by a little conversation with a nurse or assistant or giving them a cup of tea to remove any impressions due to their not being unconscious. Not long ago in the case of a man whose varicose veins I tied in the country, he smoked his pipe peacefully while the operation was going on and thought but little of it and also enjoyed a cup of tea. Besides this, if patients are nervous, perhaps even in all cases it may be well to give a small dose of morphia hypodermically just before the operation as a soothing agent. They are usually placid after this and quite easy to manage.

It goes without saying that all operations performed in this manner should be aseptic and further that the reagents should be pure and sterile. β-eucaine in powder mixed with pure chloride of sodium appears to keep and to remain dry indefinitely. But this is not so with adrenalin

chloride. It is supplied in amber-coloured bottles containing one ounce and must be kept from the light and air and from all admixture with an alkali. Thus guarded it keeps in a stoppered bottle for at least several weeks. The solution once made will keep for a number of hours, but then loses its properties of checking the blood flow. It is, when first mixed, of a pale pink colour. This it changes to light brown as it becomes inert and also throws down a slight precipitate. Boiling for a few minutes, at all events, does not seem to affect its properties at all, but this is probably an unnecessary precaution. If boiled too much I think it loses its properties sooner.

It seems probable that β-eucaine, as well as cocaine, acts directly upon living cells, becoming incorporated with their protoplasm, and that if it be retained there for any long time it becomes altered in composition and loses its general toxic properties. If this be so it is an extra reason for the admixture of adrenalin which by preventing its rapid washing away from the tissues helps to retain it in the cells until they have destroyed its general poisonous effects. There is the further advantage that by this method the analgesia is prolonged for about two hours, sometimes much longer, which gives a margin of time during which even long operations can be done without further infiltration. Another point is also worth consideration. It is generally held by experimenters that adrenalin is a cardiac stimulant and that by the contraction of the peripheral capillaries and small vessels it increases the blood pressure generally. If this is so there is a good reason for using this admixture of adrenalin in cases where great asthenia is present—as, for instance, in strangulated hernia in old people. In those cases where under these conditions I have used it I have thought the patient's general strength improved thereby, but this is not an easy matter to settle clinically unless a large number of cases are observed very closely indeed. Pulse tracings with a sphygmometer will also probably help in arriving at a conclusion and when a larger number has been made than up to the present has been the case the point will be settled.

There are many other matters, physiological, physical, and pharmacological, touched upon in Dr. Braun's interesting paper relating to this method. It is not possible to allude to them here. My object has been rather to give my own personal experience of the method after a close study of it in its many details. These have to be learned by each operator for himself, and they are well worth learning. Without a knowledge of them we cannot possibly obtain good results.

The question is often asked by those who see this procedure as to the possibility of secondary hæmorrhage following when the effects of the adrenalin have passed off. To this my reply is that I have never yet observed it as a sequel in cases where the drug has been used in the way described. In one case which seemed to offer a good test of its possible weakness in this respect I took special pains in watching its effects. This was a case where large Thiersch grafts had to be removed from the front of the patient's thigh. Here a simple sterile gauze dressing was applied to the raw blanched surface and I directed my house surgeon carefully to watch for the return of the circulation every half hour or so and especially for any reactionary bleeding as the effect of the adrenalin passed off. From the beginning to the end there was hardly a stain of blood upon the white gauze. In this case about four hours elapsed before sensation had returned. Two days later when I next saw the patient there was still no bleeding; the surface was then naturally hyperæsthetic.

The following is a list of all the cases in which I have employed this procedure:—

	No. of operations.
Radical cure of hernia—	
Inguinal	8
Femoral	1
Umbilical	0
Strangulated hernia—	
Inguinal	2
Femoral	2
Umbilical	0
Castration for tuberculous testis	2
Removal of varicose veins ...	5
Psoas abscess	5
Loose body in knee	1
Tumour of neck (actinomycosis)	1
Colotomy	1
Thiersch skin grafting	1
Cystic adenoma of thyroid ...	1
Total	30

In all these cases the analgesia was most satisfactory and far exceeded in completeness and comfort in working anything of the kind which I have seen before. In one case of strangulated hernia in a man with great pain from dragging on the mesentery due to the tight nipping in a small ring the first part of the operation was quite painless; but when I came to attempt to draw down the loop to examine its condition the patient complained of an increase of his pain in the abdomen and I gave a little chloroform for the rest of the operation.

In addition to the above cases there are three in which from some error in preparing the solution it failed to produce the desired effect as indicated by the absence of blanching of the tissues and imperfect loss of sensation as seen on the patient and on my own arm which I injected as a control observation. What the error in preparing the solution actually was is not yet quite certain, but I believe that it was the spoiling of the original adrenalin chloride solution, either by exposure or by some contamination with an alkali. But these failures convince me that great accuracy will always be necessary in preparing the analgesic solution. I hope to trace the causes of error in future cases and to be able to formulate rules for the avoidance of them. One thing seems proved at all events—i.e., that a bottle of the adrenalin chloride solution which has been opened even carefully several times and which may show no signs of turbidity or change of colour may nevertheless be inert. This I have proved by the injection of such a solution on myself as contrasted with a sample taken from a perfectly fresh bottle. But exactly when such a change takes place and how to recognise it I have not been able to determine. If the makers could supply the drug in small amber-coloured glass capsules containing one cubic centimetre of the sterilised adrenalin chloride solution (= one milligramme of the chloride) it would be a great convenience. These might be made of very thin glass like those in which nitrite of amyl is kept and could be broken into the β-eucaine solution with the certainty that their contents were sterile and unaltered by contact with air, of which the capsules should contain little or none. It must not be forgotten that the more of the adrenalin chloride solution we take from a bottle the more air must take its place. But if kept in the little glass capsules suggested or in thin tubes of the same capacity there would be no action of air on it. Moreover, greater accuracy of dosage would be gained and the preparation of the analgesic solution could be intrusted to an unskilled assistant, which is not the case now. If it were possible in somewhat larger capsules or tubes to combine the three grains of β-eucaine and 12 grains of the chloride of sodium with the one milligramme of adrenalin chloride it would be still more convenient, but the question whether the individual drugs would remain unaltered for a long time in this combination would first have to be settled by observation. Fortunately anyone can make these observations upon himself. My experience with β-eucaine and chloride of sodium in the solid form does not encourage me to hope that with the addition of the adrenalin a practically serviceable solid can be made which can be used with the simple addition of 100 cubic centimetres of boiling water. But perhaps the ingredients as indicated above may be furnished to us in glass capsules as suggested.

The following are the notes of the surgical registrar, Mr. Wilfred B. L. Trotter, from personal observations of operations performed under local analgesia with eucaine and adrenalin:—

Orchidectomy (two cases).—1. Male, aged 37 years; infiltration of the inguinal region and the scrotum; no pain. The patient was very nervous. 2. Male, aged 21 years; infiltration as above; no pain.

Varicose veins (four cases).—1. Male, aged 25 years; four incisions; no pain; sensation returned in four hours. 2. Male, aged 38 years; three incisions; no pain. 3. Male, aged 17 years; two incisions; no pain. 4. Female, aged 25 years; four incisions; no pain.

Strangulated hernia (three cases).—1. Male, aged 33 years. Analgesia was perfect until the neck of the sac was manipulated in dividing a very deep structure. Retching then came on and chloroform was given. Inguinal hernia. 2. Female, aged 72 years. The patient was very ill with a dilated heart and bronchitis. Femoral hernia; knuckle tightly strangulated; herniotomy and radical cure; no pain. 3. Female, aged 46 years; herniotomy and radical cure; no pain.

Radical cure of hernia (eight cases).—1. Female, aged 34 years; femoral hernia; usual radical cure; no pain. 2. Male, aged 20 years; inguinal hernia; Bassini's operation; no pain. 3. Female, aged 25 years; inguinal hernia; Bassini's operation; no pain. 4. Male, aged 24 years; inguinal hernia; Bassini's operation; a little pain when the cord was pulled on; none throughout the rest of the operation. 5. Female, aged 21 years; inguinal hernia; some pain when the sac was being isolated from the round ligament; none during the rest of the operation. 6. Male, aged 46 years; scrotal hernia of the size of a man's fist; some pain when the sac was being stitched; pain in the wound two and a half hours later. 7. Male, aged 29 years; scrotal hernia of the size of a man's head; pain in the posterior part of the sac, and when the contents were being

squeezed back (? pull on parietal peritoneum); some pain during stitching of the conj. tendon (? chief structures had escaped infiltration). 8. Male, aged 67 years; scrotal hernia half of the size of a football; pain when the neck of the sac was isolated and stitched; rest of operation was painless; hernia on the opposite side had been operated on under cocaine alone and chloroform had to be given.

Loose body in the knee-joint (one case).—Male, aged 27 years; body localised and cut straight on to; no pain.

Chronic ulcer of leg; skin-grafting (one case).—Male, aged 42 years; infiltration of the base of the ulcer and of the area grafted from; no pain, except at a small spot of the ulcer which had escaped infiltration; no bleeding after scraping the ulcer. The ulcer was two inches in diameter.

Psoas abscess (four operations on the same patient).—Each operation included incision, scraping, flushing, and stitching up; no pain; inside of the abscess was insensitive, except apparently for some vague sense of touch.

Note.—Since the above was written I have operated on four cases by this method: one strangulated omental inguinal hernia (a very complicated case), one radical cure of inguinal hernia, one psoas abscess, and one cystic adenoma of the thyroid. I have included these in the above table.

The Milroy Lectures

ON

THE CAUSES, PREVALENCE, AND CONTROL OF PULMONARY TUBERCULOSIS.

Delivered before the Royal College of Physicians of London on March 5th, 10th, and 12th, 1903.

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LECTURE II.[1]

Delivered on March 10th.

THE BEHAVIOUR OF TUBERCULOSIS IN CERTAIN EUROPEAN AND OTHER COUNTRIES.

MR. PRESIDENT, FELLOWS, AND GENTLEMEN,—I propose in this, my second lecture, to pass briefly in review the manner in which tuberculosis has apparently behaved in certain European and other countries during the periods for which I have been able to obtain statistics.

Although I have a somewhat voluminous collection of material I shall refer here only to certain instances which appear to afford food for special reflection, reserving the bulk of the matter for the expanded lectures which are in course of preparation. Let me, however, preface my remarks by an expression of opinion that all these statistics must be accepted with the greatest circumspection and reserve. This is more particularly the case in any attempt to contrast the behaviour of the statistics of one country with those of another, but even in respect of the different periods of the same country there are obviously difficulties. These difficulties are due mainly to altered nomenclature, better diagnostic methods, greater facilities for obtaining medical assistance in hitherto inaccessible districts, and the application of bacteriology to medicine. Even with regard to the statistics of our own country, which are probably the best the world possesses, Dr. J. Tatham warns us that we must accept them for what they are worth and that it is not unlikely that part of the decrease in the death-rate from pulmonary tuberculosis may be apparent rather than real. But it is important to keep in mind the fact that it is to statistics that appeal is sometimes being made for action of a rather comprehensive nature, involving in its detailed application grave disabilities, such as the weakening of family ties, loss of employment, and the creation of a leper class.

The measures advocated by the extremists are far-reaching in their issue, not only to the individual but to the community, and it is by way of asking how far all these measures are necessary and what result is to be hoped for from their adoption that I am venturing to submit to the judgment of the Royal College of Physicians certain of the data which are brought forward as a basis for action. While I am largely in sympathy even with the extremists, I feel that it may not be entirely useless at this juncture to examine, I trust quite dispassionately, into what are apparently the facts.

In the collection of data which I am about to bring before you I wish especially to acknowledge my indebtedness to my distinguished colleague, Dr. R. Bruce Low, and also to express my thanks to Dr. Pannwitz, the courteous secretary-general of the German Association for the Erection of Sanatoriums.

THE BEHAVIOUR OF TUBERCULOSIS IN PRUSSIA.

In the first place let us consider Prussia, because it is in respect to Germany as a whole, and Prussia in particular, that the tuberculosis problem acquires very great interest. The statistics which were contributed by the Imperial Statistical Bureau to the recent Congress on Tuberculosis in Berlin relate to the behaviour of tuberculosis as a whole in the State of Prussia for the six census years 1876, 1881, 1886, 1891, 1896, and 1901 inclusive, and they have therefore about them an element of accuracy which it is difficult to obtain in countries such as ours where the census is taken only at intervals of ten years.

As regards, then, the mortality from *all forms* of tuberculosis in Prussia we find that in the year 1886 the total number of deaths from this cause reached 88,283 and that at each quinquennial period succeeding this the gross numbers, notwithstanding the remarkable increase of population, fell to 80,151 in 1891, 70,373 in 1896, and 67,292 in 1901, the death-rates per 10,000 for the several census years being as follows: 1876, 31; 1881, 31; 1886, 31; 1891, 27; 1896, 22; and 1901, 19. It would thus appear that in so far as the statistics of the State of Prussia are concerned the tuberculosis death-rate up to 1886 was practically stationary, but that after this year and at some time between 1886 and 1891—it was, as a matter of fact, in 1887—a very substantial fall took place, a fall which has continued up to the present time. This fall seems to have been participated in by nearly all the towns of Prussia, although in one or two instances the fall was a little delayed and in some it was not maintained in 1901. For instance, in Berlin the rate remained stationary until after 1891, while in Breslau the rate in 1886 was 53, it fell in 1891 to 34, and rose in 1896 to 40, at which rate it still continued in 1901. Within recent years Charlottenburg has manifested the smallest rate—i.e., 15 per 10,000—among the large towns of Prussia. The most remarkable fall of any has been in the town of Crefeld, which in 1876 had a rate of 86 per 10,000, fell in 1881 to 51 and has rapidly decreased ever since until now it is only beaten by 1 per 10,000 by Charlottenburg in the race for the lowest place. But this fall in Crefeld is so remarkable that it suggests some altogether exceptional force, such as some modification in the method of recording the data. But whether we have regard to the country or urban districts, or whether we take the groups of towns having populations up to 20,000, or from 20,000 to 100,000, or over 100,000, there is a fall manifest since 1886 (see Table I.). The high, and in some cases persistently high, rates in certain large towns and in certain university towns are ascribed by the Bureau of Statistics to the large number of patients who come for treatment to these towns from country districts and who there help to swell the local death-rate.

We have therefore these figures to deal with. In 1886 the death rate from all forms of tuberculosis per 10,000 living was 31; it had fallen in 1901 to 19. There have evidently been some new factors operating since 1886 which were absent before that date. Now there are certain associated facts which we have to consider in relation to this drop, a drop which is in excess of that observed in this country. I will briefly recount the more important of these associated facts.

1. In 1885 there were in Prussia 2,000,000 working people belonging to the sickness banks. In 1900 this number had risen to over 5,000,000. What this increase may mean in regard to the prevention and cure of tuberculosis I shall consider in my next lecture.

2. In 1885 there were 16,379 persons treated in the public sanatoriums of Prussia, the figures for each of the four years 1887, 1889, 1890, and 1891, being respectively 17,532, 19,423, 23,812, and 30,812. *But in 1892 the number fell to 21,342.* In 1897 the figures had again reached 26,511, and in 1900 37,432. Now the remarkable fall in 1892 in the number treated in the sanatoriums was coincident with, and apparently in consequence of, the disappointment and failure which followed the pronouncement and application of the

[1] Lecture I. was published in THE LANCET of July 11th, p. 73.

TABLE I.—SHOWING THE GENERAL AND THE TUBERCULOSIS MORTALITY PER 10,000 LIVING IN THE STATE OF PRUSSIA, IN THE RURAL AND URBAN COMMUNITIES, IN THE SEVERAL LARGE TOWNS (WITH MORE THAN 100,000 INHABITANTS), AND IN THE UNIVERSITY TOWNS DURING THE YEARS 1876, 1881, 1886, 1891, 1896, AND 1901.

—	1876.		1881.		1886.		1891.		1896.		1901.	
	General death-rate.	Tuberculous death-rate.	General death-rate.	Tuberculous death-rate.	General death-rate.	Tuberculous death-rate.	General death-rate.	Tuberculous death-rate.	General death-rate.	Tuberculous death-rate.	General death-rate.	Tuberculous death-rate.
The State	256	31	250	31	262	31	230	27	209	22	207	19
Rural communities	246	28	244	29	258	29	228	25	210	20	206	17
Urban communities	276	36	261	35	269	35	233	30	208	25	207	22
Towns up to 20,000 inhabitants	270	35	257	33	272	34	237	28	216	23	219	21
Towns with from 20,000 to 100,000 inhabitants	274	38	258	39	261	37	233	31	206	25	207	21
Towns with over 100,000 inhabitants	296	35	273	36	285	37	230	31	200	26	198	25
Large towns (over 100,000 inhabitants and university towns):—												
*Berlin	301	35	276	35	260	34	211	34	182	25	180	24
*Breslau	336	34	**327**	44	310	**53**	**295**	34	255	**40**	259	**40**
Cologne	289	47	267	38	272	43	261	37	226	30	231	26
Frankfort-on-Main	208	38	194	36	**197**	42	187	37	158	29	158	26
Hanover	**196**	29	**185**	34	230	36	190	28	175	21	176	18
Magdeburg	305	32	291	30	279	30	242	29	213	23	189	19
Düsseldorf	263	38	238	39	252	39	230	30	187	25	190	19
Stettin	278	30	277	30	273	32	290	34	256	24	**263**	23
*Königsberg in Prussia	329	32	306	28	284	26	268	27	**277**	22	235	22
Charlottenburg	**364**	34	306	29	**324**	29	220	**17**	170	**15**	**139**	**15**
Altona	258	39	244	47	284	41	258	38	179	23	196	22
Elberfeld	288	59	223	**49**	241	40	192	29	**160**	23	172	22
*Halle-on-Saale	267	33	240	29	257	32	218	30	224	22	232	24
Dortmund	290	52	271	**51**	281	50	208	33	237	27	204	23
Barmen	282	56	221	42	224	42	187	31	163	23	165	22
Dantzig	296	**21**	267	**25**	281	**24**	256	27	220	24	238	21
Aachen	272	41	290	46	289	46	239	26	222	23	202	17
Essen	285	50	286	42	292	40	256	37	196	29	213	22
Posen	299	36	310	30	298	36	257	**41**	267	30	**263**	29
*Kiel	—	—	266	37	247	36	237	36	175	21	183	23
Crefeld	272	**86**	255	**51**	261	44	210	33	181	26	162	16
Cassel	209	30	207	38	213	29	**172**	26	169	26	188	22
*Bonn	262	52	267	48	277	53	279	40	265	32	260	29
*Göttingen	—	—	—	—	269	38	275	32	208	32	184	22
*Greifswald	—	—	—	—	—	—	277	31	277	27	342	36
Marburg	—	—	—	—	—	—	280	45	212	26	208	28

N.B.—The university towns are indicated by an asterisk and the highest and lowest rates for each year among the large towns are in black type. The town of Essen was enlarged in 1901 by the inclusion of the rural community of Altendorf with 63,238 persons and the town of Kiel was similarly enlarged by the inclusion of Gaarden with 13,847 persons.

tuberculin treatment. When, too, we examine the fatality-rate for the corresponding periods among the inmates of the sanatoriums we see that it fell markedly, period by period, up to 1891, but in 1894 in consequence of the disappointment in connexion with tuberculin it had risen to 37·2 per cent. It had fallen again in 1900 to 27·5, the lowest rate on record. The explanation of this fall in the fatality-rate would appear to be this. During the earlier periods, and more particularly during the time when the hope in tuberculin ran high, those who were slightly affected with tuberculosis sought relief at the sanatoriums, and the fatality-rate consequent upon this artificial selection of early cases was low. When the disappointment came those who were only slightly tuberculous postponed their entry into a sanatorium until the disease was more advanced. Hence the fatality-rate was high. But the indirect influences of the tuberculin treatment may have had, I suspect, a very material effect in affecting favourably the death-rate from tuberculosis. The belief in the efficacy of the treatment resulted in drawing public attention throughout Prussia to the importance of early recognition and treatment, and it is this early recognition of the disease and the adoption of the necessary preventive and curative measures which is one of the most essential factors in the control and lessening of the malady.

3. The third and remaining factor, which has been coincident with the fall in the tuberculous rate in Prussia, has been the marvellous growth in the commercial prosperity of Germany and the marked progress in sanitation. I shall not here attempt the impossible task of gauging the precise value of the three forces in question. Probably all have been in some degree operative, but I shall only deal briefly with the question here.

With respect to sanatoriums, it would seem to be unreasonable to suppose that the enormous strides made in the movement for the erection of these institutions in Prussia have been without effect upon the fall in the death-rate which we are now considering. The extension of the sanatorium system is likely to have exercised an influence for good not only by healing the active lung wounds of a considerable portion of the patients but also by the excellent educational influence which those leaving these institutions must exert upon others with whom they come in contact. I see that Dr. E. Mosnoy of Paris, writing in the *Revue d'Hygiène* for October, 1901, is so much impressed with this educational aspect of sanatoriums that he suggests that the fact of a tuberculous subject having been an inmate of one of these institutions shall furnish a sort of passport by which he shall be allowed to mix freely with his fellows. I believe, too, that Dr. A. Newsholme of Brighton has for some time past been utilising certain accommodation at his disposal in this purely educational sense. We were told by Professor Koch in 1901 that about 20 per cent. of the patients having tubercle bacilli in their sputum lose them by the treatment in sanitoriums. He regards this loss of bacilli as the only sure test of success, especially as regards prophylaxis. If, therefore, from 4000 to 5000 patients leave the sanatoriums

annually in a bacillus-free state there is likely to be some reduction of mischief in this sense alone. But this is not the only manner by which sanatoriums may be thought of as exerting an influence on the death-rate. Through the operation of these institutions a considerable number of persons who might otherwise have died are patched up and they are likely to continue among the workers for several years longer than would otherwise have been the case. Their contribution to the tuberculous death-rate is postponed until a subsequent period, or, what is not unlikely, they figure eventually in some other death-group. In these ways, then, as also in the matter of education, sanatoriums must, I think, exert a wholesome influence.

But Professor Koch thought in 1901 that, compared with the great number (he gave it as 226,000 over 15 years of age) of consumptives who are so far gone that hospital treatment is necessary for them, the influence of sanatoriums was slight, and I gather from a statement which he has recently made to Dr. A. P. Hillier, the secretary of the National Association for the Prevention of Tuberculosis, that he is still practically of the same opinion. In 1901 it was also Professor Koch's opinion that "the fact that tuberculosis has considerably diminished in almost all civilised states of late is attributable to the circumstance that knowledge of the contagious character of tuberculosis has been more and more widely disseminated and that caution in intercourse with consumptives has increased more and more in consequence," and it appears that Professor Koch still adheres to this view. I may say in passing that the facts as to the behaviour of tuberculosis in this country, as also in certain other countries do not altogether support this thesis. But at present we are concerned with Prussia where, I gather, Professor Koch's view as to the very limited influence of sanatoriums is shared by Professor Flügge.

I must confess that I attach considerable importance to the elaborate insurance system by which the sick worker is at once taken care of, his family supported, and his cure promoted. The influence of this system in preventing want, and consequently in maintaining and promoting the resistance of the individual, must, I think, have been considerable, more especially when regard be had to the advancing commercial prosperity of Germany and the progress in its general sanitation.

There is one other point in regard to these Prussian statistics which is deserving of attention and that is as to how far the better diagnostic methods which have resulted from the discovery of the tubercle bacillus, as also the improvement of death certification in Germany, may have had some influence in modifying the rates, although it is difficult to determine in which direction.

According to the report to which I am referring it appears that within recent years much greater reliance is to be attached to medical diagnosis than formerly and I also gather that, at any rate in the rural districts, death certification is enforced in better fashion. It has, too, to be remembered that in the case of the statistics for Prussia we are dealing with all forms of tuberculosis grouped together and that hence we are unable to ascertain what part of this fall is ascribable to phthisis and what to other forms of tuberculosis. We shall see later in what manner this differentiation might affect the phthisis-rate.

It would have been useful had the figures for other respiratory diseases been furnished in the tables in order that we might have ascertained how far there may have been any form of compensation between the tuberculous and other death-rates. The general death-rate does not enable this point to be determined. All epidemiologists, however, will be grateful to the German Statistical Bureau for the admirable report which it has drawn up and it is to be sincerely hoped that the rate of fall manifested in the tuberculosis death-rate will continue until the disease is extinct in Prussia. In matters such as these patriotism is non-existent.

THE BEHAVIOUR OF PULMONARY TUBERCULOSIS IN SAXONY.

In connexion with the Prussian figures those for Saxony are of interest, as in this portion of the German empire there is in force, in a manner which will be explained later, a modified system of compulsory notification. It will be seen from these figures, which are taken from the last official report,[2] that there has been a continuous decline in the death-rate from phthisis since 1876–80, and it will be noted that a marked fall took place in 1901. This decline was shared in by both the urban and rural populations, but the fall was most marked in the urban group. These Saxony figures are of interest when compared with those of Prussia, since the former relate to pulmonary tuberculosis alone and the latter to all forms of tuberculosis (see Table II.).

TABLE II., *showing the Behaviour of Pulmonary Tuberculosis in Saxony.*

Death-rate per 10,000 of the Population.

1873-75	23·1	1896	20·1
1876-80	25·1	1897	19·7
1881-85	24·4	1898	18·3 (19·3)
1886-90	23·6	1899	19·8
1891-95	21·2	1900	19·0
		1901	16·8

Death-rates per 10,000 in Certain Groups of Towns.

	1900.	1901.
Towns with populations of 8000 and over ...	22·1	18·7
Small towns and villages	16·9	15·1
In the whole country	19·0	16·8

And now let me turn your attention once more to

THE STATISTICS OF TUBERCULOSIS IN THE CITY OF HAMBURG.

The city of Hamburg, which has at the present time a population of some 800,000, affords an interesting example of the behaviour of tuberculosis in an eminently thriving aggregation of German people. As I have already stated in my last lecture, Dr. Reincke[3] has recently published a memorable work upon the progress of sanitation in the city of Hamburg during the nineteenth century and he has kindly allowed me to make use of the diagram contained in that volume. Although the figures date back to 1820 it is probable that little reliance can be placed upon them until 1840. Since that date the curve which relates to the tuberculous death-rate per 1000 shows a very remarkable fall—a fall which is not equalled by that relating to any other disease. The drop from the fortieth to the sixtieth year corresponds with the period during which the drainage and the central water-supply exerted a great influence upon public cleanliness. It can be seen by the curve that a fresh fall commenced soon after the beginning of the ninth decade, when it is thought that the discovery of the tubercle bacillus rendered it possible for more control to be exercised. It is not necessary to attempt an explanation of the several oscillations to be observed in the curves, but it is of interest to note that Dr. Reincke suggests that the Franco-German war may have had an influence in promoting the sudden rise in 1871-72. I propose to show later the effect of the Spanish-American war upon tuberculosis in Havana.

I have written to Dr. Reincke asking him his opinion as to the forces which have been operative in bringing about the steady fall which has taken place in the Hamburg rates and he tells me that up to 1896 no special steps were taken against the disease and that he attributes the decline to the general improvement of the conditions of living. Since 1896 the steps taken have comprised the disinfection of rooms, the control of expectoration, and the improvement of the milk-supply.

Although it is unreasonable to expect that the direct measures which have been taken should as yet have made their influences apparent it is of interest to note the present condition of affairs. During the six years preceding 1896, when the direct measures began to be taken, the death-rate per 10,000 fell from 26·2 in 1890 to 21·4 in 1895—i.e., there was a fall during the six years preceding 1896 of 4·8 per 10,000, or, stated differently, a percentage fall of 18·3. When we turn to the behaviour of the disease subsequently to 1896 we find that the rate fell from 20·1 in 1897 to 17·9 in 1902—i.e., there was a fall in the six years following 1896 of 2·2 per 10,000, or, expressed otherwise, a percentage fall of 10·9—i.e., the rate of fall for the six years following the introduction of preventive measures was materially less than that which took place prior to the inauguration of such measures. Far be it from me to infer from this that the measures taken have had no effect. On general principles

[2] Dreiunddreissigster Jahresbericht des Königlichen Landes-Medicinal-Collegiums über das Medicinalwesen im Königreiche Sachsen auf das Jahr 1901.

[3] Die Gesundheitsverhältnisse Hamburgs im neunzehnten Jahrhundert. Verlag von Leopold Voss, 1901.

they may be expected to have had a good effect, but such good effect is not apparent from the method of examination here adopted. What, however, is apparent is the steady decline which has taken place in the death-rate from pulmonary tuberculosis in Hamburg for very many years.

THE BEHAVIOUR OF TUBERCULOSIS IN FRANCE.

The relations in France of the human host to the tubercle bacillus are, if we may attach any value to the vital statistics of that country, far from satisfactory.

The report of the French Commission on the Propagation of Tuberculosis, which was issued in 1900, contains an admirable exposition on the subject from the pen of Professor Brouardel. Unfortunately, in considering the tuberculosis problem in France we are met at the threshold of the inquiry by the fact that the statistics of that country are in a somewhat imperfect state and there is consequently difficulty in obtaining an accurate conception of the true state of affairs. The statistics of the Minister of the Interior relate to 622 towns, representing together about 12,000,000 of the total population of 38,000,000 of which France is composed. It is clear, therefore, that only a very approximate inference can be drawn from these figures as to the behaviour of tuberculosis in the remaining, and greater, portion of the population. But this is only part of the difficulty and, fortunately, we are able to state the facts freely since Professor Brouardel accentuates these points of weakness in the able report to which reference has already been made. In many of the 622 towns the medical practitioners record deaths from pulmonary tuberculosis under the euphemism of "chronic bronchitis." Indeed, Professor Brouardel tells us that when he commenced his medical career in Paris this was the only term in use. At the present time some towns have no official "phthisis" but a very high figure for "chronic bronchitis" while in others the reverse condition obtains. For instance, in one large town there was a death-rate from tuberculosis of only 0·5 per 10,000, but the figures for "chronic bronchitis" were 51·4 per 10,000. Conversely, in another town there was a death-rate of only 3 per 10,000 from "chronic bronchitis" and 53 per 10,000 from "phthisis." In fact Professor Brouardel regards these two terms as largely convertible, and he has therefore grouped them together in one column. But even then it is, he says, doubtful if a true measure of the mischief wrought by the tubercle bacillus has been obtained, since about one-fourth of the total number of deaths from all causes find a place in a column headed "Other and Unknown Causes of Death." But taking the figures with the caution implied above it is found that from 1888 to 1897 the average annual death-rate from tuberculosis and chronic bronchitis for the 622 towns was 43·8 per 10,000; the 31 towns with a population of more than 50,000 yielding a rate of 49·9 per 10,000, those with a population of from 10,000 to 50,000 a rate of 39·8 per 10,000, towns with a population of from 5000 to 10,000 a rate of 35·7, and those with a population of less than 5000 a rate of 33·8. From these figures Professor Brouardel infers that the total yearly death-toll from tuberculosis in France is about 140,000—i.e., there passes away each year from this cause alone a population equal to that of Toulouse and one greater than that of Havre or Rouen.

Although it is clear that in dealing with a term so vague as that of "chronic bronchitis" we are on rather uncertain ground, Table III., which has been abstracted from the report of the Commission referred to, is not without some interest.

TABLE III.—*Showing the Death-rate per 10,000 from Tuberculosis and Chronic Bronchitis combined in the Towns of France.*

Towns.	1888-90	1891-95	1896-97	Mean rate for 1888-97
Population over 50,000	56·1	49·3	46·0	49·9
,, of from 10,000 to 50,000	40·7	41·0	37·5	39·8
,, ,, 5,000 ,, 10,000	—	36·8	35·0	35·7
,, less than 5,000	—	33·3	33·3	33·3

In so far as these rates can be regarded as affording any reliable index as to the actual behaviour of tuberculosis they may suggest that when all forms of "tuberculosis" are grouped together with "chronic bronchitis" there are some indications of a decrease save in regard to the rates relating to towns with populations of under 5000; but when the official figures for pulmonary tuberculosis alone, as set forth in the report for 1901,[4] are considered it is difficult to detect any marked tendency towards decline. (See Table IV.)

TABLE IV.—*Showing the Death-rate per 10,000 from Pulmonary Tuberculosis in the Towns of France.*

Years.	Paris.	Towns of from 100,000 to 492,000.	Towns of from 50,000 to 100,000.	Towns of from 20,000 to 30,000.	Towns of from 10,000 to 20,000.	Total above 10,000.	Towns of from 5,000 to 10,000.	Total above 5,000.
1887-90	43·7	30·4	23·7	20·1	19·2	28·7		—
1891	42·4	29·2	23·1	21·2	20·4	28·4	16·5	26·2
1892	40·8	27·1	22·6	19·7	19·3	27·1	17·1	25·2
1893	41·4	27·6	23·0	19·3	17·5	27·0	15·9	24·9
1894	38·7	28·1	22·8	21·0	19·0	26·9	16·8	25·0
1895	41·1	28·3	24·2	22·2	20·0	28·2	17·2	26·1
1896	38·9	28·0	25·1	20·9	18·5	27·3	17·1	25·5
1897	37·0	27·1	24·4	19·9	17·5	26·2	16·0	24·4
1898	38·4	26·7	24·9	19·3	18·1	26·6	17·1	24·9
1899	39·4	28·8	24·7	20·8	19·2	27·6	18·0	25·9
1900	40·1	29·3	26·5	20·9	20·1	28·5	18·7	26·7
1901	39·4	29·4	26·5	24·8	20·4	29·0	17·5	27·0

Did time allow it would be instructive to discuss the prevalence and behaviour of tuberculosis in the several quarters of France as Professor Brouardel has made some very interesting observations upon this subject. Whatever may be the true state of affairs as regards the increase or decrease of the disease in France there can, I think, be no question that tuberculosis prevails in that country to a far greater extent than is the case here in England.

THE BEHAVIOUR OF TUBERCULOSIS IN THE CITY OF AMSTERDAM.

I have selected this city as an illustration of the behaviour of pulmonary tuberculosis in an aggregation of Dutch people numbering at the last census 510,853 and because the statistics are available for as far back as 1854. In order to economise space I have divided the years 1857 to 1901 into nine quinquennial periods, an arrangement which enables the year 1901, the last for which I have the returns, to be embraced. It will be seen from Table V. that with the exception of a slight rise in the quinquennium 1877-81 there has been a continuous decline for each period since 1857-61 and that this decline has been most marked since 1886.

TABLE V.—*Showing the Death-rate per 10,000 from Pulmonary Tuberculosis in Amsterdam.*

Years.	Death-rate.	Percentage fall or rise.	Years.	Death-rate.	Percentage fall or rise.
1854-56 ... (3 years)	27·0	—	1877-81 ...	24·5	1·2 (+)
			1882-86 ...	24·1	1·6 (−)
1857-61 ...	27·6	2·2 (+)	1887-91 ...	22·5	6·6 (−)
1862-66 ...	26·0	5·8 (−)	1892-96 ...	20·6	8·4 (−)
1867-71 ...	25·9	0·4 (−)	1897-1901	17·7	14·1 (−)
1872-76 ...	24·2	6·6 (−)			

It will be noticed that the fall has been most marked since 1882-86, a fact which again lends some support to Professor Koch's thesis.

THE BEHAVIOUR OF TUBERCULOSIS IN DENMARK.

In connexion with the behaviour of pulmonary tuberculosis in Denmark Dr. Holger Rordam contributed an interesting paper to the London Congress in 1901. I have abstracted therefrom the accompanying table (Table VI.), but the figures for the last three years have been taken from the annual reports of the Royal Council of Health.[5]

[4] Statistique Sanitaire des Villes de France, 1901.

[5] Dodsaarsagerne I. Kongeriget Danmarks Byer udgivet af det Kgl. Sundhedskollegium.

TABLE VI.—*Showing the Death-rate from Pulmonary Tuberculosis per 10,000 living in Denmark.*

Years.	Copenhagen.	Other towns.
1870–74	34·2	25·2
1875–79	31·4 (a fall of 8·2%)	23·4 (a fall of 7·1%)
1880–84	28·5 (,, 9·2%)	22·4 (,, 4·3%)
1885–89	25·4 (,, 11·9%)	22·8 (a rise of 1·8%)
1890–94	20·5 (,, 18·3%)	22·0 (a fall of 2·5%)
1895–98	13·6 (,, 9·3%)	18·4 (,, 16·4%)
1899–1901 (three years only).	16·6 (,, 10·8%)	13·1 (,, 28·8%)

It appears that as regards the capital there has been a decided and continuous decline for each quinquennial period, but that in the other towns the fall has been much less marked until the last two quinquennial periods, when the fall in the other towns has exceeded that in the capital. Until quite recently there have been few direct measures taken against the disease either within or without the capital.

THE BEHAVIOUR OF TUBERCULOSIS IN VIENNA.

During a stay which I made in Austria last year Professor von Schrötter who has done so much for the control of tuberculosis in Austria was good enough to furnish me with several reports relative to the behaviour of tuberculosis in that country, but I regret to say that I have as yet had no opportunity of analysing the material. It may, however, be useful if I herewith present a table relative to the behaviour of tuberculosis in Vienna. This table (Table VII.) has been abstracted from an article by Dr. Ed. Imbeaux in the *Revue d'Hygiène* of Dec. 20th, 1902, in which he is dealing with a work of Dr. Th. Weyl upon the sanitation of Vienna. The figures, which relate to all forms of tuberculosis, show that there has been a steady decrease in the death-rate during each quinquennium for which the statistics are available. It is estimated that the death-rate from pulmonary tuberculosis is about 75 per cent. of the total death-rate from all forms of tuberculosis and if the rate given be reduced by 25 per cent. it is still found that the death-rate from tuberculosis is very considerable.

It does not appear that any special measures against tuberculosis have been taken in Vienna in the past. The causes of the decrease which has taken place do not seem to have been definitely determined, but multiple factors, such as the increase of the general wellbeing, more nourishment, and more air and light in the streets and dwellings, are accredited with a very material influence for good.

TABLE VII.—*Death-rate from Tuberculosis (apparently all forms) in the City of Vienna from 1867 to 1900 per 10,000 of the Population.*

Year.	Annual rate.	Quinquennial rate.	Year.	Annual rate.	Quinquennial rate.
1867	83·3		1882	73·9	
1868	87·5		1883	71·4	
1869	84·0	86·9	1884	71·8	72·0
1870	89·9		1885	72·4	
1871	90·0		1886	70·5	
			1887	64·0	
			1888	62·5	
1872	81·7		1889	58·3	60·4
1873	75·5		1890	58·3	
1874	69·3	76·3	1891	59·0	
1875	75·7				
1876	79·3		1892	54·9	
			1893	51·7	
			1894	50·6	52·0
1877	79·4		1895	54·1	
1878	69·0		1896	48·7	
1879	78·1	74·6	1897	46·2	
1880	73·0		1898	42·1	46·7
1881	73·8		1899	45·9	
			1900	52·9	
			(4 years)		

THE BEHAVIOUR OF TUBERCULOSIS IN BUDAPEST.

The figures for Budapest, the capital of Hungary, possessing a population at the present time of over 700,000, are available since 1875 and they have been made the subject of a series of valuable reports at the hands of Dr. Joseph von Korrosi, director of municipal statistics at Budapest. These reports relate to succeeding quinquennial periods and Dr. Korrosi was good enough to contribute to Vol. II. of the Transactions of the British Congress on Tuberculosis figures from which I have condensed the accompanying table (Table VIII.) :—

TABLE VIII.—*Death-rate from Pulmonary Tuberculosis per 10,000 of the Population of Budapest.*

Years.	Death-rate.	Years.	Death-rate.
1875–79	83·1	1890–94 ...	46·6 (a fall of 26·2 per cent.).
1880–84	75·7 (a fall of 8·9 per cent.).	1895–99 ...	38·4 (a fall of 17·6 per cent.).
1885–89	63·1 (a fall of 16·7 per cent.).	1900... ...	38·6 (a rise of 0·5 per cent.).

According to these figures there has been a rapid fall in the rates from the quinquennium 1875–79, the fall between 1875–79 and 1895–99 amounting to no less than 44·7 per 10,000. But the initial rates were of course enormous.

THE BEHAVIOUR OF TUBERCULOSIS IN SWITZERLAND.

The prevalence of tuberculosis in Switzerland is a matter of considerable interest, seeing that not only is this country what has been called the "playground of Europe" but it is also the resort of those who have acquired tuberculosis elsewhere and who seek to render themselves unsuitable hosts for the tubercle parasite of that disease.[6] It will be seen by Table IX., which treats separately of the behaviour of pulmonary tuberculosis in Switzerland as a whole and also in the 15 large towns having populations of over 10,000, that in both groups there has been in each quinquennial period between 1876 and 1900 a progressive and unchecked diminution of the disease, the most substantial fall having taken place in the last two quinquennial periods. Comparing the first quinquennium with the last we find that in the country as a whole the death-rate has fallen from 23·4 per 10,000 to 18·9 per 10,000, while as regards the large towns the fall has been from 32·1 per 10,000 to 23·4 per 10,000—that is, the death-rate for the large towns has now reached the figure which obtained for the whole country at the first quinquennial period. In connexion with these figures I am much indebted to Dr. H. Carrière of the Federal Sanitary Bureau at Berne, who has been good enough to furnish me with the figures for 1896–1901 inclusive.

TABLE IX.—*Giving the Mortality from Pulmonary Tuberculosis in Switzerland.*

Years.	Average population.	General mortality.	Average number of deaths from tuberculosis.	Deaths from tuberculosis per 10,000 inhabitants.
Switzerland as a whole.				
1876–80	2,803,338	64,672	6582	23·4
1881–85	2,899,826	61,082	6708	23·4
1886–90	2,944,989	59,750	6804	23·1
1891–95	3,003,778	60,211	6498	21·6
1896–1900	3,235,353	58,521	6131	18·9
1901	3,328,842	60,018	6241	18·7
Large towns (15 towns of more than 10,000 inhabitants).				
1876–80	408,378	10,104	1313	32·1
1881–85	446,500	10,238	1425	31·9
1886–90	483,460	10,226	1522	31·4
1891–95	547,159	9,915	1389	25·4
1896–1900	647,479	10,693	1521	23·4
1901	747,831	11,884	1654	22·1

The figures for the population of Switzerland are calculated according to the census of 1888. The figures of the census of 1900 have not yet been taken into consideration.

Up to 1900 there were in Switzerland only 15 localities with more than 10,000 inhabitants. Since 1901 there have been 18. This explains the sudden rise of population in 1901.

[6] L'Hygiène Publique en Suisse, par le Dr. H. Carrière, adjoint du Bureau Sanitaire Fédéral à Berne.

AN INQUIRY INTO

THE SUSCEPTIBILITY OF CRIMINALS TO ATMOSPHERIC CHANGES.

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(With the permission of the Directors of Convict Prisons.)

THAT atmospheric changes have a marked influence on most individuals must be admitted by all. Not a few must have in themselves or their companions observed sunshine produce exaltation. I have known a man to start on a country walk irritable and unsociable, the day being dull and cloudy, but the sun appearing later has replaced his gloom by light-heartedness, the change being too rapid to be due to altered atmospheric pressure, neither could it have been due to altered temperature as he preferred cold to heat.

I take it that everyone has experienced the depressing effects of rain and fog. In some people wind is a source of annoyance, producing an irritable mental state apart from any pain, neuralgia, and the like it may set up. Indeed, there is evidence to show that a certain wind may act antagonistically to a particular individual. A medical friend informs me that a special wind always makes him irritable and the day's work irksome, and this is, I believe, no uncommon experience. Temperature has an important action, some people feeling in better health in cold, others in hot weather. When it is considered that an average-sized man is subjected to a pressure of about 15 tons with a barometric height of 30 inches and that a rise or fall of the mercury of half an inch produces an increase or decrease of about a quarter of a ton pressure upon him, it can easily be understood that, excluding humidity, barometric pressure has some effect on the sense of well-being of the individual. These facts may be summarised as follows: sunshine (in England) is pleasant to almost everyone; dully, foggy, or rainy weather is unpleasant; wind, and sometimes a particular wind, is unpleasant to many; cold may be pleasant or unpleasant, similarly heat; barometric pressure probably has some influence on individuals; and that in this connexion pleasant signifies good, and unpleasant indifferent, functional action.

This inquiry was undertaken to ascertain if atmospheric changes influenced the criminal and although the result shows that this class of the community is, on the whole, insusceptible, it has seemed worthy of recording briefly as sustaining the assertion that the criminal is deficient in reactivity to external influences. The period of three years (from April 1st, 1898, to March 31st, 1901) was considered, the direction of the wind, the outlook (fine, wet, snow, &c.), the temperature in the shade, and the barometric height taken daily at 8 A.M. at the prison during this period were analysed, and to estimate the possible effects on the criminal the number of breaches of prison discipline occurring during the same period was compared. That prison offences are a criterion of the disposition of a prisoner at the time is undoubted. A longer period was not taken, as it can readily be understood that the administrative conditions must be as nearly as possible exact; consequently the figures are small, but I consider a fair estimate may be formed from them.

Table I. shows that on foggy, snowy, or stormy days a slightly higher number of offences occur than on overcast, rainy, or fine days; the number of days occurring under the first three conditions, however, is so small as to be valueless. The average number of offences occurring on overcast, rainy, or fine days is practically the same and if a narrower distinction be made between fine days and days which embracing the other outlooks cannot be considered fine the daily average may be considered the same. Hence the criminal does not appear to be affected by the outlook.

TABLE I.—*Outlooks.*

Outlooks.	Number of prison offences.	Number of days.	Daily average.
Foggy.	48	14	3·428
Snowy.	6	2	3·0
Stormy.	69	23	3·0
Overcast.	373	159	2·345
Rainy.	254	118	2·152
Fine.	1884	779	2·418
Fine.	1884	779	2·418
Not fine.	750	316	2·373

In Table II. the average of daily offences tends to show that the direction of the wind has possibly some slight effect on the criminal, but the winds having the highest average of offences are the least frequent, and probably larger numbers would show the wind to have no action; the difference between the extremes also is very small considering that 700 men are under observation.

TABLE II.—*Winds.*

Direction of wind.	Number of prison offences.	Number of days.	Daily average.
N.	171	60	2·850
N.E.	588	241	2·439
E.	174	68	2·588
S.E.	201	92	2·184
S.	22	8	2·750
S.W.	569	243	2·341
W.	340	144	2·361
N.W.	569	239	2·380

Table III., neglecting as unreliable on account of insufficient numbers the readings $28\frac{1}{10}$"–$28\frac{5}{10}$", $30\frac{1}{10}$", and $30\frac{5}{10}$", shows that the remaining barometric variations, although in sufficiently large numbers for a conclusion to be arrived at, have no effect.

TABLE III.—*Barometric Height.*

Barometric range.	Number of prison offences.	Number of days.	Daily average.
$28\frac{5}{10}$"–$28\frac{9}{10}$"	28	12	2·3
$28\frac{9}{10}$"–29"	299	114	2·622
$29\frac{1}{10}$"–$29\frac{5}{10}$"	1215	515	2·359
$29\frac{5}{10}$"–30"	1088	451	2·412
$30\frac{1}{10}$"	3	2	1·50
$30\frac{5}{10}$"	1	1	1·0

In Table IV., excluding the single day having a temperature of 75° F., the lower the temperature the more is the disposition of the criminal influenced, and although the daily average with a temperature range of from 31° to 40° is only slightly in excess of that of from 61° to 70°, the gradation is uninterrupted and tends to show that low temperatures are possibly slightly antagonistic to healthy functional action in these men.

TABLE IV.—*Temperatures.*

Temperature in the shade.	Number of prison offences.	Number of days.	Daily average.
31°–40°	281	92	3·064
41°–50°	910	375	2·426
51°–60°	957	405	2·362
61°–70°	482	222	2·171
75°	4	1	4

In conclusion, it may be considered that, with a possible exception in the case of temperature variations, the criminal is unaffected by atmospheric changes. It will readily be conceded that the normal individual is affected, often considerably. In a previous paper[1] the criminal was shown to be insensible to external impressions. The above facts appear to support this view.

Portland.

[1] Physical and Moral Insensibility in the Criminal, Journal of Mental Science, October, 1901.

ROENTGEN RAYS IN THE DIAGNOSIS OF LUNG DISEASE.[1]

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(*With Plate.*)

As the evidence here adduced in support of the value of the x rays in the diagnosis of lung disease may in some quarters be deemed inconclusive it has been thought wise to preface this paper by a reference to some of the limitations by which the use of the x rays in this connexion is confined. At a meeting such as this, where the undoubted value of screen work cannot be demonstrated, the consciousness of that limitation is in a very special manner present to one's mind. Yet, although the actual phenomena are such that they cannot be shown by lantern, some of them are of such great interest and importance as to demand something more than a mere passing allusion. In the first place attention is directed to the movements of the diaphragm as seen upon the screen. If the patient stands in the upright posture before a tube placed from ten to 18 inches in front of him and at the level of the diaphragm and if the observer places a screen covered with barium platino-cyanide against the back of the patient at the same level, certain facts become obvious. Thus, when the patient breathes deeply the vertical movements of the diaphragm at once become apparent. We look in vain for the flattening of the sides of the diaphragm which physiologists have taught us to expect during inspiration. What we do see is the diaphragm descending bodily during inspiration and ascending similarly during expiration. The extent of this movement varies from about half an inch during ordinary respiration to two or three inches during forced respiration. Now this movement, called by Walsham the "piston movement" of the diaphragm, is subject to considerable modification in certain pathological conditions. Thus, in pneumothorax the position of the diaphragm not only stands at a very low level upon the affected side but it is practically motionless. The movements may also be interfered with by the presence of fluid or by pleuritic adhesions. But, most important of all, it is found that where there is even a very slight tuberculous deposit present in one lung, be it in the apex of the upper lobe, the movements of the diaphragm upon the affected side are distinctly lessened. This is a point of very considerable value in the early diagnosis of tuberculosis. Indeed, it has been claimed by Williams that the lessened descent of the diaphragm may even precede pulmonary tuberculosis. This, however, we have failed to confirm.

Having satisfied ourselves as to the information vouchsafed by the diaphragm, our attention is next directed to the state of the lungs themselves. In doing so one looks first of all at the condition of the apices and at their behaviour during the different phases of the respiratory cycle. The lighting up of the healthy, or emphysematous, apex which takes place during deep inspiration easily marks it out from a non-illuminable lesion upon the other side. This negative quality which an infiltrated area possesses—viz., its failure to light up on the screen at full inspiration to the same extent as the non-affected apex does—is of very great value. Indeed, it is absolutely diagnostic, either of an active or an arrested lesion. It is thus of special value to us where the evidence afforded by ordinary physical signs may be thought inconclusive. This property also enables one to define the level of the apex of the lungs on each side respectively—a point in diagnosis to which many attach much importance. Or, again, one may feel certain of the existence of extra-bronchial pressure and yet be unable by ordinary means of examination to decide whether the pressure present is being produced by enlarged glands or by an aneurysm. In such circumstances on more than one occasion, where a most careful consideration of the physical signs had left one still in doubt, one has succeeded in perceiving on the screen the pulsating movements peculiar to aneurysm and so has been enabled to arrive at a definite diagnosis as to the condition present. The movements of the ribs during inspiration may be plainly seen by means of the screen. That these may be impaired or practically absent over the whole of one side or even of both sides of the chest, as in cases of collapsed lung and intrathoracic tumour, is familiar to all. The physical signs in such cases are, however, so conclusive that screening does not afford the physician any real assistance. It is not so, however, where the interference with the movements of the ribs is limited to a small section of the chest wall as frequently occurs in early cases of tuberculous disease. Here the evidence which the screen affords is of very real value in helping one to determine the presence and extent of the lesion.

The absence of post-mortem evidence in support of the views held as to the nature of the lesions shown in the various photographs may be held as constituting a weakness. But on reflection it will be seen that the confirmatory value of post-mortem evidence is not nearly so great as one might at first be disposed to assume. For if we except emphysema the condition of lung mostly found on post-mortem examination is that of collapse. This absence of air from the lung is a vital matter since it appears to be the case that it is the presence of air within the organ which accounts for the various shades of illumination which take place. One is confirmed in this view by the observation frequently made that a colon distended by gas gives a light appearance, whilst a normal colon is represented by a dark shadow. Thus, the pathological condition found in the post-mortem room on the day after will almost certainly be altogether different from that which produced a photograph or screen picture 24 hours before.

With these references to the uses of the screen, necessarily brief and incomplete, we now proceed to consider the value of x-ray photography in diagnosing chest disease. It is convenient to begin by presenting a skiagram of a normal chest taken with the subject lying upon his back with the arms extended over his head.[2] In it there are a number of points to which one naturally alludes: Firstly, the ribs and clavicles are seen to occupy upon both sides of the body a fairly horizontal position; secondly, the shadows on either side of the spinal column indicate the outline of the scapula; thirdly, the position of the heart is shown; fourthly, the rounded shape of the diaphragm and the different levels at which it stands upon the two sides, that of the right side being the higher of the two, call for notice; fifthly, in the chest the transparent appearance extending up to the extreme apex of the lungs should be particularly noted; and sixthly, the presence of a vertical shadow to the height of the cardiac dulness is of common occurrence. It has been thought by some that it corresponds to the junction of the pleura and pericardium. Professor D. J. Cunningham, who recently examined a well-marked case of this condition along with me, has suggested that it may be due to the puckering of the outer edge of the pericardium during cardiac systole—a view in favour of which much can be said and which we are inclined to adopt.

Extra-pulmonary.—1. Bones. As an example of one of the many forms of malformation in the bony framework present in lung disease there is shown the photograph (Fig. 1) of a man, 30 years of age, who suffered from repeated and protracted attacks of whooping-cough in infancy. The extremely irregular shape of the ribs, and particularly the flattening in the lowering of them due to retraction, should be noted. The next three photographs represent a condition which has by some been called "roof-tile," by others "water-fall" ribs. It is a condition which may exist respectively upon both sides of the chest, upon one side, or upon a portion only of one side. As there is usually found associated with it a considerable amount of fixation of the ribs it necessitates on the part of the patient when present to any considerable extent an almost purely abdominal type of breathing. The first shown (Fig. 2) is from a case in which there was believed to be present a considerable amount of chronic disease in both lungs; the second (Fig. 3) shows the "roof-tile" arrangement of the ribs accompanying a badly resolved unilateral lobar pneumonia; whilst the third (Fig. 11) indicates the same form of arrangement of the ribs in the upper portion of the right side where collapse is due to the local condition of the lung. Some of us no doubt have recognised

[1] A paper read before the Edinburgh Medico-Chirurgical Society on June 3rd, 1903.

[2] The lecture was illustrated by photographic slides from skiagraphic negatives.

the difficulty which attended an effort to procure a percussion note in the intercostal spaces of one side as compared with that of the other. This condition probably explains the cause of the difficulty which we had. The next slide shows a case of pulmonary tuberculosis at present under treatment, complicated by disease of the vertebral column with symptoms of pressure upon the eighth cervical and first and second dorsal nerves. In this case the peripheral sensory phenomena did not appear until three or four weeks after the skiagram had been taken and two months after the lung lesion was diagnosed. The appearance presented by the clavicles is a point which should be taken into consideration. These, you will recall, were already referred to as occupying in the normal subject a relatively horizontal position. In Fig. 4 you will observe that whilst the left remains fairly level the right clavicle passes upwards and outwards at an acute angle. This feature usually accompanies a measure of compensatory emphysema in the sound apex and its presence is no doubt emphasised by the sinking of the clavicle which has taken place over the affected area upon the other side.

2. Heart.—Although the variations in the shape of the heart met with are fairly numerous, as could be shown, it has been found necessary to relinquish their consideration in favour of relatively more important matter. The enlarged heart frequently found associated with emphysema is shown in Fig. 5. That this is a real hypertrophy and one not due to dilatation is suggested by the purity and strength of the cardiac sounds and by the total absence of murmurs. A commoner condition than enlarged heart is the small heart associated with phthisis, a skiagram of which is shown. That the position of the heart may be changed by lung disease only requires to be mentioned. On Fig. 6 you will observe the appearance of a case of dextrocardia associated with a certain amount of left-sided pleural effusion, and Fig. 7 shows marked displacement of the apex beat towards the left, caused by retraction upon the part of a left side lesion. In presenting Fig. 8 we have done so in the hope that someone will be able to offer a suggestion as to its meaning. We have seen this appearance in two cases. The outstanding features are the widening at the origin of the great vessels and the extension of the shadow in the direction of the outer end of the right clavicle. Seen upon the screen slight pulsation appeared to be present on the latter portion of the shadow but as far as could be made out there was no difference between the radial pulses of the two sides and there were no pressure symptoms present. There seemed also to be a slight constriction at the heart base.

3. Pleural.—In this skiagram of a case of fluid pleurisy the dark shadow at the base of the lung, which gradually shades off into light, should be noted. It has been suggested that this shading is due to capillary attraction. When air is present as well as fluid no such shading-off appears. The upper border is then clearly defined, as was recently well shown by Dr. Hugh Walsham.[3] It may be sufficient to describe these as they occur in the case of left-sided pyopneumothorax. The patient is first photographed in the upright posture. In the print so obtained one observes the presence of a dark shadow occupying the lower third of the left side with an abnormally bright area above it; the opposite side is mainly occupied by a shadow caused by the heart which was pushed over towards the right by the presence of the intrapleural fluid and air on the other side. That the shadow is entirely due to the presence of fluid at the base of the left side appears to us to be conclusively established by the evidence of a second photograph, which shows the appearance present when the patient has been photographed *not* in the erect posture but with the trunk tilted over at an angle of 30 degrees from the vertical. But the real point to which we wish particularly to call your attention is that although the position of the patient has been removed from the vertical the level of the fluid is shown to remain horizontal. Fig. 9 is that of a patient in which the physical signs pointed to the presence of thickened pleura. Very coarse friction sounds were heard all over the lower third of the left side and the conduction of the breath sounds was very greatly impaired and the same applied to the resonance of the percussion note. A feature of these conditions is the vertical streaking present, as seen here.

Pulmonary.—We come now to deal with lung conditions proper. Variations in the appearance presented by skiagrams of different lung conditions seemed to be largely regulated by the amount of air present in the part. Roughly speaking, as already stated, absence of air is represented by shade, presence of air by light. Bearing this in mind it is proposed to submit skiagrams of some of the conditions more commonly met with in lung practice.

1. Infiltration.—This being a condition in which the normal amount of air present is diminished one would expect to find it represented by a relatively dark appearance and in that anticipation one is not disappointed. Fig. 10 represents a one-lobed lesion in which arrest of disease had been secured. Two-lobed lesions are, of course, more common and the usual sites of infiltration are the apices of the upper and lower lobes. The slide submitted shows a less common two-lobed lesion—viz., that of right and left upper apices. In Fig. 11 you will readily recognise the appearance present in the usual three-lobed lesion so commonly met with. We direct your attention particularly to the fact that the apex of the right side has become involved before the disease has reached the base of either lobe upon the side first affected. The circumstance that the lower portion of the affected lung appeared to be healthy has frequently led to a very casual examination having been made upon the other side and consequently to the more recent lesion escaping notice and the patient being erroneously informed that the other side was unaffected. Fig. 12 shows the appearances present alike in a four- and in a five-lobed lesion. A lesion in the middle lobe gives approximately the same appearance as a lesion at the apex of the lower lobe on the right side.

2.—As much of a contentious and speculative nature has been written during the past few years upon the subject of the relationship between tuberculosis and lobar pneumonia I wish to place before you a photograph of some interest in this connexion. The patient whose chest is represented in Fig. 3 suffered from an attack of right-sided lobar pneumonia (basal) in January, 1903. The attack appears to have been a typical one and the fever to have fallen by crisis. During convalescence the patient went to the Canary Islands and returned home about six weeks ago, apparently quite well. Within a day or two of arrival in Scotland rigors accompanied by a rise of temperature appeared. On examining the chest, although as yet no sputum had appeared, two physicians expressed the view that the case was one of tuberculosis. Sputum appeared a week afterwards and contained numerous tubercle bacilli occurring in clumped masses. There seems little doubt that here, at least, tuberculous infection has taken place in an imperfectly resolved lobar pneumonia. The case seems to support the position of those who hold the view that lobar pneumonia may predispose the patient to tuberculous infection.

3. In chronic fibroid phthisis the condition varies much with the duration of the disease. Roughly speaking, there are numerous areas of solid fibrotic structure, with here and there small emphysematous areas scattered throughout the lobe. Thus one would look for a combination of light and shade in a skiagram of a chronic fibroid lung, and this is exactly what one finds. The appearance it gives is one of mottling of the lung itself with displacement of organs. This is fairly well shown in Fig. 13.

4. In cavity formation we are again dealing with a dense and a clear area. Fig. 14 shows distinctly the appearances presented by an ordinary apical cavity and even more clearly the less common condition of a basal cavity. This case appears also to point to a primary lobar pneumonia followed months afterwards by tuberculous infection.

5. The appearance presented by collapse is very well seen in Fig. 15. The case was one of pyopneumothorax operated upon 18 months before this photograph was taken. We direct your attention to the fact that the shadow in this case is very much denser than in those of infiltration or even of ordinary fibrosis.

6. Emphysema is recognised by the abnormally light appearance of the lung, the widening of the intercostal spaces, the raising of the angle of the clavicles, and if not uniform by cardiac displacement.

In concluding there is submitted:—

7. Actinomycosis.—Fig. 16 presents the appearance of a foreign body growing in the lung. There is reason to believe that the disease also involves the pleura. As you are aware the average duration of those cases is about eight months. This patient, an athletic lad, aged 18 years, contracted the disease nearly three years ago. Although it has steadily advanced the patient is still alive. On the one hand, its appearance differs from that of collapse in not being

[3] Archives of the Roentgen Ray, December, 1902.

nearly so dark as that condition, and on the other it differs from the appearance of chronic fibroid in showing complete absence of mottling. It will be noted that whereas there is a certain amount of shadow in the lower part of the right lung the upper part is perfectly clear.

ON SOME FURTHER IMPROVEMENTS IN

THE PROCEDURES FOR TESTING AND JUDGING BY THE NAKED EYE OF THE AGGLUTINATING AND BACTERIOLYTIC EFFECTS EXERTED BY THE SERA OF PATIENTS

SUFFERING FROM, OR PREVENTIVELY INOCULATED AGAINST, TYPHOID FEVER, MALTA FEVER, AND TUBERCULOUS AFFECTIONS.

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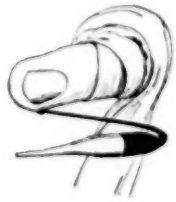
I PROPOSE to set forth in this communication a simplified and improved technique which has a practical application wherever we desire to add progressive dilutions of a fluid to another fluid. In particular—and this is the point which interests us here—the method has a useful practical application in connexion with the accurate quantitative determination of the effect exerted upon suspensions of bacteria and finely divided bacterial particles by agglutinating and bacteriolytic sera, and, I may add, salt solutions.

In the technique which is to be described the apparatus is narrowed down to a blood capsule, used for collecting the blood, and a single capillary tube,[1] a slip of glass, and a rubber teat used in the actual testing operations. The operations of progressively diluting the serum (or salt solution and of mixing the successive dilutions in each case with the bacterial suspension are completed in uninterrupted sequence. Further, the effect exerted in the entire series of dilutions is submitted to the eye at a glance. The technique of the testing operation, essentially the same in all cases, may be described by setting forth the actual operations which would be undertaken in testing the blood of a tuberculous patient subjected to inoculation with the new tuberculin with a view to the development of protective substances in his blood.

Method of drawing off a sample of blood and obtaining the serum.—I have already elsewhere[2] described what I conceive to be the most convenient form of blood capsule and the most convenient procedure for collecting blood. This procedure is briefly as follows. A capsule such as that depicted in Fig. 1

FIG. 1.



Showing method of taking blood from the finger.

is taken in hand. Its straight upper extremity is formed into a pricker by fusing it in the flame of a match and drawing it out (after withdrawing it from the flame) into a very fine spicule. After serving its purposes the sharp end is broken off in order to provide escape for the air as the capsule is filled in through the curved limb. The necessary blood is obtained by making pressure on the pulp of the finger after winding a bandage round the digit. When the finger pulp has been evacuated in this way the ligature is relaxed and reapplied and pressure is again made. This manœuvre is repeated until a sufficient quantum of blood has been obtained. The straight upper limb of the capsule is then warmed in the flame and its extremity sealed. The contained air which has been rarefied by the heating now contracts and draws the blood back into the body of the capsule. The extremity of the bent limb thus left free is now sealed in its turn. The next step is to shake down the blood into the unoccupied upper end of the capsule. After a sufficient interval has been allowed for clotting the hand centrifuge is brought into use, the capsule being suspended by its bent limb into the tube of the apparatus. When the serum has been obtained by centrifugalisation the bent limb is snapped off with a bone forceps and the capsule is placed, as shown in Fig. 2, upright in a perforated rubber bung.

FIG. 2.

The capsule placed in the bung.

Preparation of the test fluid.—In the case where the response which has been made by a patient to inoculations of the new tuberculin is to be elicited the most convenient test fluid to employ is a suspension of the extremely fine detritus obtained by grinding down cultures of the tubercle bacillus. Koch prescribes that this suspension should be made by triturating the tubercle powder in carbolised physiological salt solution. He incidentally refers to the fact that the test fluid becomes "hypersensitive" on keeping. This is equivalent to stating that with this fluid fallacies may arise by "spontaneous" agglutination and deposition. In my personal experience such "spontaneous" agglutination and deposition sooner or later occur in every suspension made in accordance with the directions of Koch. In some cases it manifests itself already after 24 hours—i.e., in control tubes filled in with a perfectly freshly prepared suspension.

The train of ideas which I have elsewhere[3] developed in setting forth a theory with regard to the intimate nature of agglutination led me to inquire whether the chloride of sodium in the test fluid was the active agent in calling forth these "spontaneous" agglutinations. I find that this is so. When all excess of salt is avoided by making up the suspension of the tubercle powder with carbolised distilled water, and by employing to dilute the serum a 1 in 1000 solution of common salt, instead of the 8·5 per 1000 solution prescribed by Koch, fallacious agglutinations and precipitations are, in my experience, completely avoided.

The following modification of Koch's procedure furnishes a trustworthy test fluid. A minute quantity of the tubercle powder is placed in an agate mortar. Distilled water to which 0·5 per cent. of carbolic acid has been added is now poured upon the powder drop by drop. After triturating for a few minutes the turbid suspension thus obtained is syphoned into a capsule similar to that figured above in connexion with the collection of blood from the finger. After sealing the ends the capsule is centrifugalised for a few minutes in a hand centrifuge and the supernatant milky fluid is employed for the test.

Procedure for mixing the test fluid with progressive dilutions of the serum.—A capillary pipette is taken in the hand, either such a simple pipette as that shown in Fig. 3, A and B, or, better, such a "throttled pipette" as is exhibited in Fig. 3, C and D. This last is made from the simple form of pipette by drawing out in the flame of a peep-light the capillary stem at the point where it comes off from the neck; breaking it across here; coating with sealing-wax the outside of the capillary stem near its throttled extremity; and then passing the capillary stem down through the truncated and heated butt end, originally the expanded portion of the simple pipette. A completely air-tight joint is formed in the neck of the tube by the solidification of the melted sealing-wax. By the throttling

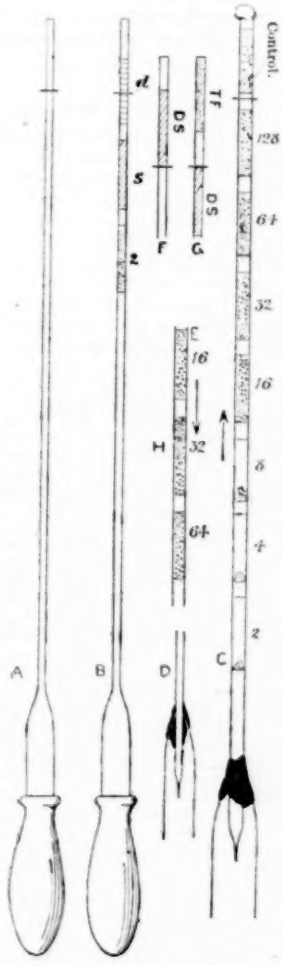
[1] At the moment of sending this to press I learn that Dr. B. W. Collingwood had already, in the course of work in South Africa, modified my original method of serum testing as is here done by the substitution of a single capillary tube for a series of such tubes.

[2] Proceedings of the Royal Society, 1902, Vol. lxxi.

[3] THE LANCET, May 9th, 1903, p. 1299.

of the pipette we obtain a more effective control over the movements of the fluid in the tube and we avoid the free evaporation which in the case of the simple form of pipette occurs through the patent neck. When we bring the

FIG. 3.

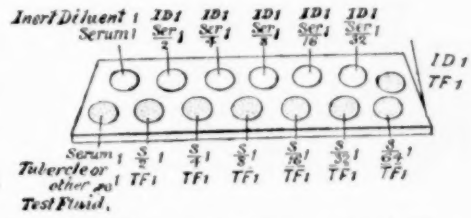


A, Simple pipette. B, Simple pipette containing: at *2*, one volume of serum mixed with one volume of test fluid; at *s*, one volume of serum; at *d*, one volume of diluting fluid. C, Throttled pipette in section. D, Throttled pipette filled in with progressive serum dilution mixed in each case with an equal volume of test fluid. F and G, Showing method of economising in mixing diluted serum (ps) in each case with an equal volume of test fluid. H, Shows portion of the stem of pipette inverted in order to bring into view the character of the deposit.

pipette into use we aspirate into the stem of the pipette one volume of the undiluted serum, a bubble of air to serve as an index, and one volume of the test fluid. We expel these and mix as indicated in Fig. 4 on the lower and left-hand corner of an ordinary microscopic slide. Of the mixture thus obtained we re-aspirate exactly one volume into the stem of our pipette.

Having divided off with a suitable bubble of air we now introduce into the stem of our pipette one volume of serum and one volume of the inert diluent (a 1 in 1000 dilution of chloride of sodium). The contents of the pipette are at this stage as shown in Fig. 3 B. We again expel the two last mentioned volumes, mixing on the upper left-hand corner of the slide as indicated in Fig. 4. The quantum of diluted serum thus obtained will provide our second test mixture and will in addition, if we consent to practise the little economies to which attention is directed in Fig. 3, F and G, furnish material for our successive dilutions. It will be seen that in F there has been filled into the stem of the pipette in lieu of a complete volume of diluted serum an incomplete volume eked out by a considerable bubble of air. In G there has been added a

FIG. 4.



Progressive dilutions of serum (upper row of drops) and mixture of these progressive dilutions in each case with an equal volume of bacterial test fluid (lower row of drops).

quantum of test fluid which—as will be recognised on considering that it is completed to one volume by the identical bubble of air—is exactly equal to the quantum of diluted serum which now occupies the portion of the tube above the fiduciary line. Having mixed on the slide in the situation indicated in the figure for this particular mixture we re-aspirate into the pipette as in the case of the former and all subsequent mixtures exactly one volume of the mixed fluids. We now make our next serum dilution, employing for this purpose a full volume of the twofold dilution of serum and, of course, a full volume of the inert diluent.

Proceeding upon these principles we fill in in succession into the stem of our pipette a series, ordinarily a series of seven or eight graduated dilutions of serum mixed in each case with a precisely equivalent volume of the bacterial suspension. We complete the series by introducing into the pipette a mixture of equal volumes of the inert diluent and test fluid to serve as a control. Finally we seal up the upper orifice of the capillary stem in the flame, inscribe the patient's name on the wide end of the tube, and place the pipette upright upon its base in a test-tube rack. We then leave it to stand in the incubator or, as the case may be, on the laboratory bench.

Phenomena which come into view in the successive test mixtures and the significance of these phenomena.—Before considering in detail the phenomena which come into view in a capillary pipette filled in with successive mixtures of the test fluid and serum of a patient who has responded with a production of tuberculotropic substances to inoculations of the new tuberculin it will be well to clear away a series of pre-suppositions in connexion with agglutination tests which are gradually incrusting themselves round our minds.

1. It is currently laid down that an agglutination reaction may be *accepted* only in the case where the serum has been subjected to a considerable dilution. This statement holds good only if the running together of a few bacteria to form small clumps invisible except under the microscope is to rank as an agglutination reaction. What it really comes to is that if we accept as adequate an agglutination altogether inconspicuous to the naked eye and if we allow a considerable interval for its appearance we must exact a high degree of serum dilution. But reflection will make it clear that we can maintain exactly the same strictness in our standard if we relax in the matter of our dilutions and become correspondingly more exacting in other respects. Our exactions may, for instance, take the form of demanding that the agglutination effect shall manifest itself instantaneously, that the agglutination effect shall make its appearance in a dense bacterial suspension and that it shall be so pronounced as to discover itself to the naked eye. The advantages of the policy of working under conditions which involve a minimum dilution of the serum—and this is the policy followed out in the procedure described above—are very considerable. We dispense with all necessity for a microscope and we obtain our result with an absolute

minimum of delay—in the case of an ordinary typhoid serum practically instantaneously.[4]

2. It is currently assumed that the effect which comes under observation when serum is mixed in vitro with a bacterial suspension is a pure agglutination effect. It is possible that little else comes under observation when the serum is highly diluted. But in low dilutions (certainly in the case where serum is mixed with a typhoid culture and, so far as I can judge, also in the case where serum is mixed with the tubercle test fluid) there is superadded to the agglutination effect also a macroscopically visible bacteriolytic effect.[5] It follows that we cannot correctly interpret the phenomena which come into view in a mixture of serum and culture unless we bear in mind that bacteriolysis may be going on in each case hand in hand with agglutination. In particular we must bear in mind that an agglutination effect occurring in lower dilutions of serum is often after a certain interval completely masked by the dissolution of the clumps of agglutinated bacteria which were formed on first mixture. We must bear in mind also that a falling away of the bacteriolytic power such as occurs during the "negative phase" which succeeds upon a bacterial inoculation or upon a multiplication of bacteria in the infected organism, would tend to bring the agglutination reaction more into evidence.

These preliminary matters disposed of we may turn to the consideration of the phenomena which would manifest themselves in our capillary pipette in the case of a patient in whose blood tuberculotropic substances have been developed. After an interval of some 12 hours flocculation and deposition associated with a corresponding clarification of the supernatant fluid would be observable in a certain number of the test mixtures. In Fig. 3, C, complete sedimentation is represented as having occurred in the two-, four-, and eight-fold dilutions of the serum.[5] In the 16- and 32-fold dilutions a partial sedimentation has occurred. In the case of the higher dilutions of the serum and in the control the fluid is here shown as having remained evenly milky. A more minute study of the appearances brings out certain further points. The precipitate in the two-fold dilution of the serum is in most cases—presumably as a consequence of bacteriolysis—markedly less in bulk than the precipitate in the next following dilution. Be it remembered in this connexion that the pipette has been filled in with exactly equal quantities of each successive mixture. Again, after standing, in particular after long standing, a deposit makes its appearance also in the higher dilutions of the serum and in the control. This settling down can be distinguished from that which is causally connected with agglutination by two characteristics. In the first place it is associated with a clarification of these test mixtures which is in each case progressive from above downwards. (This point is not clearly brought out in the figure.) In the second place the deposit which is due to simple gravitation differs in character from that which is the result of agglutination. While the deposit in the latter case consists of conglomerated masses of bacterial particles irregularly piled one upon the other in such a way as to furnish an irregular surface outline (shown in Fig. 3, C, in connexion with the four- and eight-fold dilutions of the serum) the deposit in the former case consists of isolated bacterial particles forming a perfectly flat layer. Where, as illustrated in the figure in connexion with the 16- and 32-fold dilutions of the serum, attention to these characters does not entirely dispel doubt, a very simple device will reveal the character of the deposit. It is only necessary to invert the pipette for a few minutes and to bear in mind that a deposit composed of isolated bacterial particles will diffuse itself evenly through the fluid, while a deposit consisting of conglomerated bacterial particles will fall down in the form of separate pellets.

In a future communication I propose to draw attention to the importance of carrying out the method of blood examination in connexion with the inoculation of the new tuberculin.

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[4] I may note that such an instantaneous and macroscopically visible agglutination obtained in a mixture of equal parts of undiluted serum and typhoid culture is in my experience quite as conclusive of the diagnosis as an agglutination visible under the microscope after a quarter of an hour in a 1 in 50 dilution of the serum.

[5] I have elsewhere shown that the bacteriolytic effect exerted on the typhoid bacillus can be quantitatively determined by adding to the serum an enumerated culture of the typhoid bacillus and recounting it after digestion with the serum, conducting the enumeration in each case under the microscope by the method described by me in THE LANCET of July 5th, 1902. Normal human serum dissolves in a quarter of an hour at blood heat over 1,000,000,000 of the typhoid bacilli with which my experiments were carried out.

[5] These changes—possibly as a result of the falling away of the bacteriolytic effect in the higher dilutions—manifest themselves first in the third or fourth test mixture.

OBSERVATIONS ON MASTICATION.

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III.[1]

EVILS RESULTING FROM INEFFICIENT MASTICATION.

Too much food is eaten.—Inefficient mastication conduces to excessive eating. Now it is obvious that soft foods, and these constitute the bulk of our modern dietary, pass much more readily into the stomach than coarse, hard foods which compel a certain amount of preliminary mastication, and for this reason the former predispose to excessive eating: hence a danger at all periods of life, not only in grown-ups but in children, even infants; brought up as the latter are mainly on liquid and pappy foods, many of them consume not only far more than is needful, but far more than is healthful, their stomachs being literally deluged with nutriment.

When the food is of a kind necessitating abundant mastication it is much less likely to be taken in excess, for the longer the time spent in mastication the less will the individual be tempted to consume; even in the case of soft food less will probably be eaten if it be thoroughly masticated and insalivated than if it be bolted. Thorough mastication, however, not only tends to diminish the amount of food consumed on account of the time and labour which it entails; it actually reduces the amount needful to constitute a sufficiency, for the more perfectly the food is chewed the more perfectly is it digested and the more economically is it disposed of in the system; the less, moreover, is the tendency to that morbid craving for food which is so frequent an accompaniment of defective digestion. It is certain that appetite and the needs of the system are sooner satisfied when food is well masticated and digested than when it is swallowed whole.

A mass of unmasticated food may lodge in the throat and cause fatal suffocation.—This may seem to be a very exceptional kind of evil, but I am informed by one whose experience makes him an authority on the ways of the British soldier that it is by no means uncommon for soldiers in barracks to die from this cause. Usually it is when they are under the influence of alcohol that fatal results occur, post-mortem examination disclosing large undigested masses of food in the stomach. A like experience is also frequently met with in the case of men killed by accident.

The presence of masses of imperfectly masticated food in the stomach may cause disturbance either mechanically or by reason of their imperviousness to the gastric juices.—We have already seen that the digestibility of a food is largely determined by its consistence and that many articles of diet, such as cheese, hard-boiled egg, cocoa-nut, lobster, and new bread, which have the reputation of being very indigestible can if finely comminuted by chewing or otherwise be rendered quite digestible. Such articles are indigestible essentially by reason of their compactness; the compact lumps, but little pervious to the gastric juice, tend to undergo abnormal chemical change in the stomach and may in this way cause violent local irritation even to the extent of setting up acute gastritis; or they may paralyse the nerves of the stomach and check gastric secretion and movement and thus remain *in loco* wholly undigested for hours or even days; or, again, more distant nervous effects may be produced such as frontal headache, which may be felt almost immediately after ingestion of the peccant substance, being of reflex rather than toxic origin and presumably in some cases at least due to the mere mechanical irritation of the stomach. The passage of imperfectly digested food into the bowel may still further aggravate matters. It does not seem improbable that the habitual bolting of food, by the prolonged local irritation to which it gives rise, may predispose to cancer of the stomach: Napoleon was a notorious fast eater and it is well known that he died from this disease.

[1] Nos. I. and II. were published in THE LANCET of July 11th (p. 84) and 18th (p. 150), 1903, respectively.

While, however, the bolting of food readily sets up disturbance in some, it must be conceded that in many it seems to cause little or no inconvenience; especially is this the case in the young with vigorous muscular stomachs capable of triturating the food and thus doing duty for the teeth. The human stomach is, indeed, a long-suffering organ and wonderfully tolerant of ill-treatment, sometimes almost rivalling in its hardiness the gizzard of the bird. Nor is this surprising when we reflect that it is, in the ordinary course of nature, constantly exposed to the entrance of noxious substances. In this respect it stands in marked contrast to the intestines, for not only are highly irritant substances often vomited rather than passed onwards, but in ordinary circumstances the gastric contents are not allowed to pass the pylorus until they have been duly prepared by the stomach; the pylorus, in fact, stands guard over the entrance to the bowel and is jealous of anything passing it which is likely to injure that canal.

And just as the pylorus protects the bowel so, in exceptional cases, may the œsophagus protect the stomach, regurgitating, after the fashion of the ruminants, insufficently masticated bits of food, in order that they may be re-masticated. I have myself met with cases in point. Sometimes, in cases of this kind, the œsophagus may be dilated into a sort of proventriculus which is capable of temporarily lodging a large quantity of food. Such a proventriculus is said to have developed in an apprentice who, not being allowed sufficient time for his dinner, rapidly bolted it, to regurgitate it after working hours and to chew the cud at leisure. Whether in these cases the food is ever returned from the stomach itself I am unable to say.

While the stomach is the organ especially liable to be injured by the swallowing of lumps of unmasticated food, the bowel may also suffer, especially the cæcum and vermiform appendix. And here we come to one of the most serious indictments against the bolting of food; though man has doubtless always suffered from appendicitis there can be little doubt that this malady is more common now than it used to be, and there is equally little doubt, in my own mind at least, that the cause of its greater frequency is related to his food. I do not propose to discuss here in detail how food is capable of causing appendicitis, but will merely refer to one of the ways in which it may do so. I had already come to the conclusion that the habit of bolting food is a potent cause when I read Sir Frederick Treves's Cavendish Lecture in which he makes that contention. Sir Frederick Treves points out that in this rushing age people, especially business men, are apt to hurry over their meals and to take them at irregular times and often while standing at a bar; even when there is more leisure food is rarely masticated nowadays in the same thorough way that it was in the old time when it was of a coarser nature: hence solid lumps, especially in the case of such articles as pine-apple, preserved ginger, nuts, tough meat, and lobster, are apt to pass beyond the pylorus and, escaping intestinal digestion, to lodge in the cæcum and precipitate an attack of appendicitis, the most common predisposing cause of which is a loaded cæcum, often preceded by constipation. Sir Frederick Treves contends that this distended state of the cæcum encourages catarrh of the appendix by dragging upon it and blocking its orifice, as well as by twisting it and thus interfering with its blood-supply.[2]

An excess of starch is apt to pass into the stomach.—We have just seen that inefficient mastication tends to promote over-eating, and what has been said on this head applies to all kinds of food, starchy foods among others. It leads, however, to a further evil as regards these latter; not only does it tend unduly to increase the quantity of them consumed but it too often causes the stomach and intestines to become flooded with starch in a wholly undigested form. I cannot too frequently repeat that in ancient times, especially in the pre-cooking age, laborious mastication was needed in the case of all starchy foods, partly because they were coarse and fibrous but chiefly because the starch and other nutritive ingredients had, in order to become available for nutrition, to be liberated from their undigestible cellulose envelopes. In these days of prepared, soft, starchy foods, however, mastication is very little required for these purposes, but in other respects it is as needful as ever, indeed more needful, if the large quantities of starch which are now consumed are to be insalivated effectually. The laborious and sustained mastication to which primitive man was compelled to subject *his limited supplies of uncooked starchy foods went far to effect complete digestion of the starch within the mouth*, for raw starch is freely digested by the saliva[3] and hence in his case *very little passed into the stomach in a wholly undigested form.* How different is the case with us moderns. Since the opening of the era of agriculture and cooking, man has enormously multiplied his supplies of saccharide, and he now consumes large quantities of starch which has been freed from its cellulose framework by cooking, milling, grinding, and the like, and reduced to a soft or pappy form, such as milk puddings, porridge, boiled potatoes, and new bread, all of which can be swallowed with little or no preliminary chewing; and when food can be swallowed easily without mastication few will take the trouble to masticate it. In these circumstances the starch does not undergo adequate salivary digestion, and a large quantity passes wholly undigested into, and out of, the stomach, not beginning to be digested until it reaches the bowel. Small wonder that the latter should rebel against this invasion and that flatulence, pain, and other dyspeptic evils should result.

It is especially in young children that these evils are observed. Too often the stomach of the child, semi-carnivorous, remember, by its ancestry, is literally deluged with pure starch. At the seventh or eighth month, or even earlier, for many of the patent infant foods contain it, this substance is poured into the stomach without being afforded any opportunity of undergoing salivary digestion, and for a long time after infancy large quantities are given in the liquid or pultaceous form, such as rusks soaked in milk, puddings, and mashed potatoes. This practice of deluging the digestive organs with starch, besides leading to the more immediate troubles connected with flatulent dyspepsia, gives rise to abundant formation of toxins which by irritating the alimentary mucous membrane set up gastro-intestinal catarrh; this, again, intensifies the dyspepsia already existing and causes a still further production of toxins so that the motions become intensely fœtid. These poisons being absorbed into the blood the tissues become saturated with them and the nutrition of the entire organism is disturbed, the faulty metabolism manifesting itself by a diminished resistance to pathogenic agencies, by a tendency on the part of the tissues to inflame (as shown by a liability in children thus fed to bronchitis, rhinitis, naso-pharyngitis, and tonsillitis), by their proneness to tuberculosis, and finally by a disposition to rickets which I little doubt is essentially of toxæmic origin.

Besides the above-mentioned troubles an excess of starch in the stomach may set up hyperchlorhydria—i.e., that form of dyspepsia in which there is excessive secretion of hydrochloric acid. This affection occurs during the most vigorous years of life and is apparently due to excessive activity on the part of the gastric glands. The excess of acid does not give rise to any symptoms so long as there is any unsatisfied proteid in the stomach to unite with it, but directly all the proteid is satisfied and free acid is present in the stomach pain, heartburn, and distension are apt to be felt; hence these symptoms are generally removed temporarily by a meal, the food ingested seizing upon the free acid, and tend to recur in the course of an hour or two. Other symptoms are mental and bodily lassitude and great mental depression, while if the condition is long-continued gastric catarrh and dilatation ensue. Eructation of the acrid mass, its removal with a tube or its dilution or neutralisation by an alkali, causes relief of the symptoms. Now Dr. William Russell, who has recently studied this form of dyspepsia, has shown, and the fact is most significant from our present point of view, that in it starch is the last constituent to leave the stomach; that when this organ has so far emptied itself as to contain but one or two ounces of very acrid material the residue consists chiefly of finely divided undigested starch which continues to stimulate the gastric secretion "and there being no more proteid with which to combine the secretion accumulates and leads to hyperacidity."[4] Inasmuch, then, as inefficient mastication leads to an

[2] Gilbert Barling also traces the relationship between appendicitis and diet. "In a considerable number of cases," he writes, "the attack of appendicitis can be directly attributed to unsuitable food—pork, mackerel, over-ripe or under-ripe fruit, uncooked vegetables" (Brit. Med. Jour., vol. i., 1903, p. 61).

[3] My friend, Dr. Thompson, undertook at my suggestion some experiments to test the digestibility of raw starch within the mouth; he found that raw potato yields abundant sugar when subjected to long-continued mastication.

[4] THE LANCET, March 21st, 1903, p. 806.

excess of starch in the stomach, we see how it may predispose to hyperchlorhydria and we shall presently see that there is yet another reason why it should do so.

It will be gathered from the foregoing that thorough mastication is the most effective way of securing efficient starch digestion. This simple fact has been most strangely overlooked. Thus "van Valzah considers that not a little of the difficulty of the digestion of starches and cereals can be overcome by more thorough cooking. Patients who cannot eat potatoes after ordinary cooking are [he urges] often able to digest them very readily if they are doubly cooked before being served. Cereals, as a rule, should [he contends] be allowed to simmer all night and then be thoroughly cooked for a half hour in the morning before being eaten."[5] This is an admirable illustration of the modern tendency to cheat the mouth of its proper work. A much more rational way of facilitating starch digestion in those who experience a difficulty in this respect is by efficient mastication.

Evils resulting from an insufficient quantity of alkali in the stomach.—I doubt if it is adequately realised what a large amount of alkaline saliva passes into the stomach as the result of prolonged mastication. Its presence there serves the useful purpose of prolonging the period of starch digestion within the stomach, while it further aids gastric digestion not only by exciting the secretion of gastric juice but also by its influence on the reaction of the gastric contents; it can scarcely be doubted that the effect is on the whole one favourable to digestion in general. We have just seen that defective mastication may predispose to hypochlorhydria by allowing an excess of pure starch to pass into the stomach, and I suggest that it may further operate in the same direction by cheating the stomach of its due supply of alkaline saliva. Now the saliva in this affection is apt, as was pointed out by Sir William Roberts, to be superalkaline, and for this reason he recommended his acid-dyspeptics to excite the flow of it by chewing gum mastic with the object of neutralising the gastric hyperacidity. That relief can thus be obtained there can be no doubt, but it is surely more rational to get the patient to stimulate his salivary glands by masticating actual food, by which we secure the additional advantages accruing from its complete insalivation and comminution as well as from the reflex gastric effects. Actuated by these considerations, I have long been in the habit of recommending hyperchlorhydriacs to subject their food to prolonged mastication, this being, in my belief, the most rational and effective way of breaking the stomach of its vicious habit. In extreme cases we must insist that each morsel of food should be chewed at least 100 times and not permit any relaxation of this severe discipline until the stomach has been schooled into healthier ways.

Evils in connexion with the jaws and their appendages and the adjacent structures: the nasal passages, naso-pharynx, and faucial tonsils.—In those who do not masticate properly in early life these parts fail to develop as they should and they are on this account alone predisposed to disease; their resistance to disease is still further lowered by the fact of their blood and lymph flow not being adequately stimulated by the vigorous exercise of the masticatory muscles. Now we have seen that the great cause of defective mastication in children is the softness of the food given them and that the feeding of them upon an excess of soft food, especially the starchy kind, disturbs digestion, induces toxæmia, and in this way evokes a catarrhal tendency. In children thus fed we have therefore several conditions which make for disease in the parts under consideration—defective development, sluggish circulation, and toxic saturation. Is it any wonder that the modern child should be liable to disease in these regions, that he should so frequently suffer from rhinitis, naso-pharyngitis, tonsillitis, and from hypertrophy of the pharyngeal tonsil ("adenoids") and of the faucial tonsils?

It is in this way that I would explain the frequency of adenoids among the children of civilised communities. I claim, in fact, that this disease is largely dietetic in origin. I submit that a child whose nasal apparatus and naso-pharynx are well-grown and habitually bathed by a stream of pure blood and lymph, periodically accelerated by an ample and vigorous use of the masticatory muscles, is unlikely to contract adenoids. On the other hand, I contend that a child in whom these parts are ill-developed and bathed by an habitually sluggish stream of tainted blood and lymph—one, i.e., that is not only poisoned, but rarely, if ever, hurried along its lazy course by due exercise of the muscles of mastication—I submit that such a child runs great risk of contracting the disease. The influence in setting up adenoids of toxic saturation with its resulting catarrhal tendency is shown by the frequency with which this affection follows upon the rhinitis and naso-pharyngitis of measles and diphtheria, and in order to realise how greatly the circulation of blood and lymph in the walls of the naso-pharynx must be influenced by mastication one has but to remember how very closely the pterygoids are related to this region; in exploring it for adenoids they can, indeed, often be felt to stand out prominently.[6]

This, then, is my explanation of the truly fearful prevalence of adenoids among the moderns. It is essentially a disease of pap-fed peoples. A child may, with the one exception that he is fed on a pappy, super-saccharide diet, be brought up under ideal health conditions. He may live in the heart of a dry, open country, far from the darkness, dust, and tainted atmosphere of the town, sleep with the windows open all night, live out of doors all day, be fed on the most nourishing (too nourishing it may be) food, be clothed after the most approved methods, and yet, in spite of all this, we may find his naso-pharynx packed with adenoids. This disease is, in fact, scarcely less prevalent in the country than in the towns, scarcely less common among the rich than among the poor. Yet in primitive communities it is practically unknown. And what, I would ask, is the one condition in the material environment of my supposititious child differing from that of the primitive child? What but the factor of diet? Therefore, I say, the prevalence of adenoids among moderns must be the result of the modern system of feeding children and the defective mastication which goes along with it.

That the foregoing is a grave indictment against that system it need scarcely be said. For adenoid disease is fraught with many evils, among them mental hebetude, blocking of the Eustachian tubes and manifold other auditory troubles, gastro-intestinal disturbances from the passage into the stomach of unhealthy discharges, and, most serious of all, nasal obstruction and consequent mouth-breathing. So serious are the evils connected with this latter habit that they demand more than a passing reference. Pronounced adenoid disease is always associated with mouth-breathing and there can be no doubt that in the majority of these cases the nasal obstruction is not in the nasal passages primarily but is due to a blockage of the posterior nares by the adenoid growths, for it generally happens that nasal breathing is rapidly re-established after their removal, though in a certain proportion of cases the obstruction still persists and has to be dealt with by treatment directed to the nasal passages themselves. Some have, indeed, contended that a primary nasal obstruction is one important factor in the induction of adenoids, leading as it does to a dry-cupping of the naso-pharynx during inspiration and to a consequent congestion of its lining membrane. I am quite ready to allow that this mechanism may play some part in causation and such an assumption is in entire harmony with my main contention that adenoid disease is of dietetic origin, for nasal obstruction in children other than that caused by adenoids is mainly due to defective development of the nasal passages coupled with inflammation of their lining membrane, both of which conditions may, as we have seen, be essentially the outcome of defective diet.

Coming now to the evils resulting from mouth-breathing we have first to remember that normally the air is inhaled through the nose and is thus warmed, moistened, and filtered before being allowed to pass into the lungs; but in the mouth-breather the air, which may be dry, cold, and dust-laden, passes at once unprepared through the mouth into the lungs, impinging in its passage against the pharynx, thus drying and mechanically irritating the mouth, pharynx, larynx, and bronchial tubes, all of which are thereby predisposed to disease. In this way laryngitis and bronchitis, nay, even phthisis, may be induced. Dental caries is also predisposed to by the habit of breathing through the mouth.

[5] Brit. Med. Jour., Epitome, vol. i., 1903, p. 45.

[6] A further aid to the circulation in the naso-pharynx is afforded by the lusty use of the voice. It is natural for the young human to cry and to shout and unless this instinct is allowed full play the child is apt to suffer in health. I cannot but think that the modern child is too much repressed in this respect and that he is not afforded, especially in towns, proper opportunity of venting his vocal energy in out-door play. May we not have here a contributory factor in the causation of adenoids?

Mouth-breathing further interferes with the proper development of the cranial bones, but especially of the maxilla, giving rise to what may be termed the "mouth-breather's jaw," so characteristic is it. I do not propose to discuss here the mechanism by which this deformity is produced, interesting though the question is; suffice it to say that nasal breathing is essential to the normal development of the jaws. The deformity in question, though it involves the maxilla chiefly, affects also the mandible from the fact of its being to a large extent moulded on the maxilla; in typical cases the maxilla is small and its alveolar ridge does not attain its normal length but is compressed laterally towards the sagittal plane, giving rise to the false appearance of a "high arch" and often thrusting the anterior portion of the ridge forwards; the teeth, the growth of which is not so much interfered with as that of the imbedding bone, are thus prevented from taking up their proper positions and show irregularity, sometimes extreme. Dental irregularity may also, as we shall see, result from inadequate use of the jaws in mastication, but not to the extent which is frequently observed in the mouth-breather's jaws, and therefore pronounced dental irregularity always shows that there has been protracted nasal obstruction, and this in the vast majority of cases implies the existence of adenoids, past or present; I say in the "vast majority," for in a few rare cases long-continued nasal obstruction in children originates primarily in the nose and may lead to the typical mouth-breather's jaw with the resulting dental irregularity.

The tongue.—If the tongue is not properly exercised in childhood and youth we find it imperfectly developed; hence in inefficient masticators it is generally small. It must not be forgotten in this connexion that this organ is considerably exercised when the infant is at the breast, from which the milk is obtained not by suction but by a vigorous tugging and squeezing of the nipple (in which the tongue takes considerable part) whereby the gland is reflexly excited to secrete. When, on the other hand, the child feeds at the bottle he obtains his milk by actual suction and generally through an orifice of such ample dimensions as to allow the bottle to be rapidly emptied with comparatively little exercise of the lips and tongue. In short, the breast-fed infant has to do some work for his living and that of a sort calculated to promote the health of the jaws and their appendages, while the bottle-fed child can glut himself by doing very little more than opening his mouth; wherefore we find the tongue and adjacent parts less developed in the latter than in the former. It may be thought to be a matter of indifference whether the tongue develops to its normal proportions or remains small, but such is by no means the case, for, as Dr. J. Sim Wallace has shown, the pressure of this structure against the teeth promotes the normal development of the jaws, especially of the mandible, and when it is small they are apt to be so too.

The salivary glands.—Just as mastication increases the functional activity of the salivary glands and buccal glands and favours their normal development so, contrariwise, inefficient mastication during early life fails to call forth their normal functional activity and to secure their adequate development. Thus we find that a child who has been brought up on hard starchy foods necessitating abundant mastication has much larger and more active salivary glands than one who has been fed on soft foods which slip down into the stomach before they have had the chance of being properly masticated, and it is needless to say that the more efficient these glands are the more likely is digestion to be carried out satisfactorily.

The jaw-bones.—If the jaws are not adequately exercised in youth by mastication they fail to grow to their normal size and shape and there is apt in consequence to be overcrowding of the teeth. The main defect of the jaws in such cases is their smallness; they do not present that pronounced lateral compression and anterior protrusion which characterise the mouth-breather's jaw, nor such extreme dental irregularity, the most common being overlapping of the incisors, displacement of the canines, and difficulties in regard to the eruption of the wisdom teeth from shortness of the alveolar ridge. I have already referred to the progressive shortening in the post-molar ridge which has been taking place during man's evolution from the anthropoid in correspondence with the alteration in his diet.

We thus see that defective use of the jaws leads to irregularity of the teeth (1) directly and (2) indirectly through the induction of adenoids. This irregularity is not only unsightly but leads to certain evils which thus primarily owe their origin, in large measure at least, to defective mastication. What, then, are these evils? In the first place, dental irregularity predisposes to dental caries by favouring the lodgment of food between the teeth; in the next place, it leads to defective "bite." Now when the bite is defective adequate mastication is impossible, for not only is it impossible in these circumstances to oppose the teeth properly, but also, owing to their interlocking, to accomplish that free lateral movement of the lower teeth against the upper which belongs to normal mastication. I do not say that defective bite is the sole cause of this imperfect lateral movement; it may, indeed, be observed in most moderns brought up on soft pappy food whether the bite be good or not. Normal mastication is, in fact, becoming a lost art; the average modern masticates mainly by a vertical compression of the lower teeth against the upper, and in only a small degree by a lateral frictional movement which, it is needless to say, is the more effective method for grinding purposes; and it is, I doubt not, chiefly for this reason that the teeth of modern man are so much less worn down than those of primitive peoples.

The teeth.—Imperfect use of the teeth leads to many ills. When adequately exercised and made to execute for one or two hours every day a lively dance in their sockets, during which the circulation of blood and lymph in the tooth-pulp, periodontal membrane, and surrounding tissue of the gum is vigorously stimulated and the cavity of the mouth is bathed in a copious flow of salivary and other buccal secretions, we have conditions which make alike for the health of the buccal mucous membrane, of the teeth, and of the periodontal membrane and alveoli; but when the circulation is not duly stimulated in this way the teeth do not develop properly, while the secretions of the mouth are apt to be scanty and unhealthy, both of which conditions predispose to caries. How far dental caries is due to inherent dental weakness and how far to faulty conditions outside the teeth we need not stop to inquire; Dr. Wallace attributes little influence to the former factor, contending that caries depends essentially upon faulty dental environment, and one can scarcely doubt that the state of the gums and of the oral secretions profoundly influences the growth of bacteria in the mouth, upon the acid yielded by which organisms the corrosion of the dental enamel essentially depends. Faulty conditions of the oral secretions likewise favours the deposit of tartar.

Another result of imperfect use of the teeth is undue thinness of the alveolar walls and periodontal membrane, in consequence of which the teeth are not so firmly held in their sockets as they should be. This is, I believe, one of the reasons why they are prone to fall out prematurely among the moderns: we know that the teeth tend to drop out in old people owing to a senile atrophy of the alveolar walls; the Haversian canals get smaller and may indeed disappear entirely, and it stands to reason that this atrophy must be hastened by inefficient exercise of the teeth. So far as I am able to gather from an examination of skulls in museums the teeth are rarely shed among primitive peoples before extreme old age, while among moderns they frequently fall out long ere this is attained.

A still worse evil attaching to insufficient use of the teeth is pyorrhœa alveolaris or Riggs's disease, which in conjunction with the deposit of tartar is the great cause of the premature loosening and shedding of the teeth observed among latter-day civilised peoples. This affection consists of a purulent inflammation of the periodontal membrane owing to the invasion of it by pyogenic cocci, so that pus wells up on pressing the gum against the teeth. Now, when by a vigorous use of the teeth the buccal cavity is kept well flushed with healthy secretions the growth of micro-organisms within this chamber is kept down, and when by the same means the vitality of the periodontal membrane and adjacent tissues of the gum is periodically stimulated these tissues offer stout resistance to the invasion of pathogenic organisms; but when, contrariwise, the teeth are little used the secretions of the mouth are in consequence defective both as to quality and quantity and the growth of organisms in the buccal cavity is promoted; and when, further, the circulation in the periodontal membrane and adjacent soft tissues is not adequately stimulated by vigorous mastication their vitality is poor and they offer but a feeble resistance to parasitic invasion. We can thus, I think, safely infer that inefficient mastication is a potent cause of pyorrhœa alveolaris; and the chief cause of inefficient

mastication being the eating of soft foods, we must also conclude that the latter practice is chiefly responsible for the disease in question; such foods further predispose to this affection in that they are apt to lodge between the teeth and by undergoing decomposition there to favour the growth of micro-organisms within the mouth. The condition of the teeth and gums among the civilised poor is, alas, little calculated to make us proud of our boasted civilisation—the spongy pus-exuding gums, the lengthening, loose, tartar-covered, carious teeth, and the putrescent breath constitute a damning indictment against our modern system of living on a soft, pappy diet and not giving the teeth the work for which they are designed. I never examine such a mouth without being impressed with, and I may add oppressed by, this fact.

I am not, of course, contending that pyorrhœa alveolaris only occurs in those who masticate inefficiently; whatever causes an unhealthy condition of the gums and saliva predisposes to it, but it is surely much less common in those whose masticate well than in those who masticate ill. Confirmatory of this statement is the fact that it is more frequent in those with irregular teeth than in those with a good bite, who are thus able to put their teeth to more effective use. This affection is very common among the carnivora of menageries as well as among dogs and cats; indeed, one seldom fails to find it in dogs over four years of age and in old dogs it is generally rampant. Doubtless in all these cases the general conditions of life play some part in the causation of the disease, but I do not think that we can eliminate from it the factor of defective use of the jaws and teeth, for it is certain that dogs and cats are fed largely on pappy foods and are often insufficiently supplied with bones.

The causation of dental caries.—Dr. Wallace, in his philosophical work on "The Cause and Prevention of Decay in Teeth," contends that the cause of the prevalence of dental caries is that the natural food-stuffs are to a large extent ridded of their accompanying fibrous parts and consumed in a form which renders them liable to lodge and to undergo acid fermentation in the mouth, while from the same cause and the induced conditions the micro-organisms of the mouth lodge and multiply and augment the rapidity and intensity of the acid fermentation. I am perfectly at one with Dr. Wallace in believing that the removal of the fibrous portions of food is the main cause of the prevalence of caries among moderns and I can hardly doubt that foods so prepared tend to promote caries in the way indicated, but I venture to think that they do this even more by failing to call forth the normal degree of mastication. I cannot but think that if these same soft foods were as laboriously masticated as they would need to be if they retained their fibrous ingredients, dental caries would be much less common than it actually is. I have endeavoured to show how very different the local conditions are in the efficient from what they are in the inefficient masticator—how in the former the jaws and teeth are wont to be well developed, the bite to be good, and the secretions which bathe the teeth to be of a kind calculated to promote their health, and how in the latter an entirely opposite set of conditions is wont to prevail. That it is possible to maintain a fine set of healthy teeth till past middle life on ordinary civilised diet, provided the food be habitually subjected to efficient mastication, is shown in the case of the man already referred to and by numerous other cases which I have observed.

Since the application of cooking to food there has been a progressive lessening in the work of the jaws and teeth and parallel with this a diminution in their size and an incursion of dental caries. Among the anthropoids in their natural state caries is practically unknown and I think we may conclude that the same was true of man before he learnt to cook. In the pre-agricultural races, such as the aboriginal Australians, the effect of cooking the food is shown in the lessening in the size of the wisdom teeth and of the post-wisdom alveolar ridge; dental caries though rare among these people does occur and especially in the wisdom teeth.[7] In the early agricultural period, owing to the increasing softness of the vegetable food, the jaws and teeth show a tendency to be smaller than in the previous periods; the wisdom teeth are decidedly smaller and more prone to caries, while caries of the other teeth is by no means rare. In the late agricultural period the jaws and teeth often show very decided defects of development, while dental caries is, as we know but too well, rampant.

What has been said concerning the relative prevalence of caries in different diet epochs applies to many other diseases of the teeth; thus along with the increase of caries there has been a parallel increase in the prevalence of pyorrhœa alveolaris.

CONCLUDING REMARKS.

I have now set forth some of the evils resulting from inefficient mastication. They are many and serious. The immediate evils, such as over-eating, indigestion, adenoids, dental caries, and pyorrhœa alveolaris, are bad enough, but when we consider the secondary evils to which these primary ones give rise, and I have only mentioned a few of them, we must come to the conclusion that an appalling amount of misery and suffering may be saved by the simple expedient of inculcating the habit of efficient mastication. How this end can best be accomplished will be considered in the next section.

(To be concluded.)

[7] Among the Australian skulls I have examined in museums caries of the wisdom teeth—i.e., in those very teeth which, as shown by their atrophy, are least used—is by no means uncommon (though it is possible that some of the skulls belong to natives who have embraced the dietetic customs of the white man). I submit that this fact may fairly be used as an argument in favour of the view that inefficient use of the teeth predisposes them to caries by interfering with their resisting power, though it must be acknowledged that the position of the wisdom teeth places them at a disadvantage owing to the tendency of food to accumulate about them, especially in undeveloped jaws in which they have not adequate room.

THE CONSERVATIVE TREATMENT OF LESIONS OF THE UTERINE APPENDAGES.[1]

BY GEORGE GRANVILLE BANTOCK, M.D., F.R.C.S. EDIN.

THE conservative treatment of lesions of the uterine appendages has been the theme of discussion for several years. The question has been looked at from two different standpoints. The first is based on the desire to avoid the necessity for a second operation by removing the organ on the suspicion of disease in a very early stage. The second has in view the idea of treating the suspected organ so as to arrest the disease and to render retention possible. Both are acts of conservative surgery, although in appearance diametrically opposed to each another.

In the first instance it was maintained, as the result of experience, that if one ovary were diseased the other was very liable to be attacked. The argument was fortified by the frequency with which every extended list of ovariotomies showed a double operation in which the evidence of disease was unmistakeable. This was especially liable to occur in the case of the colloid tumour. My own list shows this in a marked degree, for in a very large majority of the cases of this kind the second ovary was already characteristically affected and in one instance I had to perform a second operation within three years. The same argument was used in the case of the Fallopian tube with even more weight and it was strongly held by the late Mr. Lawson Tait that in the case of ectopic gestation it was the duty of the surgeon to remove both the tubes to prevent a similar occurrence in the other tube. He was able to support the argument and practice by several examples of this occurrence. When one Fallopian tube is the seat of the inflammatory process it is very rare that the other tube is free from the evidence of disease and therefore the operation is usually double. Nor is it difficult to understand why this should be so. The Fallopian tubes are continuous with the uterus, not only by contiguity, but also by continuity of structure, both as regards their tissues, cavities, and vascular supply, and there is no evidence to show that inflammatory disease arises in the tubes without a corresponding condition in the uterus. No case of salpingitis or pyosalpinx has, to my knowledge, been recorded without the existence of the inflammatory process in the uterus at some time preceding the development of this condition. According to the doctrine of to-day salpingitis is brought about by the passing of microbes from the uterus into the tube by continuity of way. It is scarcely necessary for me to say that I do not accept this view, regarding it as a mere assumption based on the doctrine of the microbic origin of

[1] A paper read (in Spanish) at the Fourteenth International Congress of Medicine held in Madrid in April, 1903.

disease which I have elsewhere shown to be untenable.[2] Be this as it may, clinical observation confirms the view I have stated above as to the implication of the two organs—the uterus and the tube—when the latter is found to be diseased. If, then, in operating on a case of ovarian cystoma we find the second ovary presenting distinct evidence of disease it is an act of true conservative surgery to remove that organ. In my opinion this practice is applicable, and with equal force, to the case of the Fallopian tube.

On the other hand, the second principle of treatment, as I have said, has in view the treatment of the suspected organ so as to arrest the disease and to render the retention of the organ possible. The principle is the same whether we employ the method of ignipuncture or excision of the suspected part. Now it is a difficult thing to say at the earliest stage whether an ovary is diseased or not. To this class especially has this treatment been directed and I am not at all satisfied that the basis is a sound one. It is all very well to point to a limited number of cases in which impregnation has followed this operation. This very fact appears to sustain my objection that these organs were not the seat of any disease at all. In many cases of ovariotomy I have been in considerable doubt as to the condition of the second ovary, but only once have I put this practice into force by evacuating a large Graafian follicle which was probably on the point of bursting. What the final result was I have never heard, but I certainly could not found any argument in favour of the proceeding on such a case. On the other hand, I have often been in considerable doubt, especially in the cases of young married women, and have abstained from interference with the happiest results. I recall one case in particular in which, after having removed a dermoid tumour of about three pounds in weight, the condition of the other ovary was such as to raise in my mind the gravest apprehension until, some months after, I heard that she was pregnant. This patient continues free from disease. It is a remarkable fact that in those cases in which I have had to operate a second time there was not the slightest suspicion of disease at the time of the first operation. The intervals varied from 18 years, 11 (in which case the woman bore twins—one of each sex—within 18 months) and three years, down to one year.

There is a third point of view from which this question may be considered—viz., the idea that the ovary is the source of an internal secretion which is of use in the economy and that on this account one ovary at least should be left behind in cases of complete hysterectomy. It is said that this practice renders the menopause more easy. I venture to repeat here what I have elsewhere said more than once, that there is not a particle of evidence to support this view of an internal secretion. It is merely an effort of the imagination. On the other hand, experience tells us that the menopause is not beneficially affected. I have recently placed on record a case of ovariotomy seven years after complete hysterectomy.[3] In this case both ovaries, which appeared to be perfectly healthy, were left behind. Yet the symptoms of the menopause were unusually severe and protracted. This fact and the occurrence of disease so many years after furnish a strong argument against this practice. The idea has been handed down to us from the time when the pathology of the sexual organs was in a state of chaos that at the "change of life" the woman must necessarily suffer. Careful investigation, however, shows that the majority of women do not suffer any inconvenience and that whatever symptoms may be present they are due to the arrest of menstruation.

With regard to the condition of hydrosalpinx and to the operation of salpingostomy my own experience is not favourable. Nor does it appear that the general results of this operation give any support to the practice. When we consider that for the production of a hydrosalpinx it is necessary that both ends of the tube be occluded and that, while it may be quite possible to restore the infundibular end or to make a substitute for it, to render patulous the uterine end is not so easy of accomplishment. With this view the late Dr. Mundé proposed catheterisation of the uterine end, but his results do not appear to support the practice and it is not reasonable to suppose that a single catheterisation, even if it were practicable, could bring about a cure. Long experience has taught me that the ovary is usually regarded as the seat of disease (inflammation) when a patient complains of pain in the region of that organ. Hence we hear a great deal of acute and chronic ovaritis. I am convinced that the uterus is in these cases the true *fons et origo mali* and that the pain is reflex. This is confirmed by the fact that inspection of the uterus shows it to be congested and that when this is subdued the pain ceases. It is very rare that the pain of uterine congestion is referred to the uterus itself and when the sound is passed into the cavity or the cervix is struck by the finger in examination we have a sure means of determining the source of the pain. Moreover, in these cases the ovary is not more tender than usual.

A word of protest against that mania for operating—the *cacoethes operandi*—which characterises the gynæcological surgery of the day. I have rescued from operation a considerable number of patients who had been condemned to suffer the loss of their uterine appendages on account of some supposed disease of the ovaries, one or both. All these patients are alive and well and some of them have borne children, one patient as many as four. I have also seen many cases in which the clinical evidence, pointing to severe inflammatory disease of the appendages, was overwhelming and in which the signs and symptoms all disappeared under appropriate treatment, and I cannot but believe that many cases are operated upon without sufficient justification.

I therefore draw the following conclusions: (1) that in the course of an ovariotomy it is true conservative surgery to remove the second ovary if it shows palpable disease; (2) that in the case of ectopic gestation or of salpingitis, either acute or chronic, it is advisable in the great majority of cases, if not in all, to do the double operation; (3) that the practice of ignipuncture or partial resection of a suspected ovary is not founded on specific data; (4) that it is not true conservative surgery to leave an ovary in cases of complete hysterectomy; and (5) that the operation of salpingostomy does not appear to me to have any claim to be regarded as worthy of acceptance.

[2] On the Importance of Gonorrhœa as a cause of Inflammation of the Pelvic Organs, Brit. Med. Jour., April 4th, 1891; and the Modern Doctrine of Bacteriology, &c.

[3] Brit. Med. Jour., Jan. 17th, 1903.

HAVE THE LOCALITY AND SURROUNDINGS AN INFLUENCE UPON THE RECURRENCE OF MALIGNANT DISEASE AFTER OPERATION?[1]

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YOU may reasonably inquire what business a surgeon has to address the members of a congress of public health? My answer will be in the words of the elephant's child in Rudyard Kipling's "Just-So" stories that it is "all along of my insatiable curiosity." I want to know the experience of my audience upon a matter about which I can get but little information from my own side of the profession. I want to know whether after an operation for malignant disease it is advisable or inadvisable to send a patient back to his old home and to his former surroundings, or whether it is better to recommend him to break altogether with his previous existence? In other words, have the locality and surroundings an influence upon the recurrence of malignant disease after a successful surgical operation? I will illustrate my meaning by some cases which have lately come under my notice.

CASE 1.—A married woman, aged 50 years, whose mother had died from cancer and who had a well-marked tuberculous history, developed cancer of the breast. The mammary gland was removed and with it some enlarged glands from the axilla. I examined the breast and glands after removal and found them to be very malignant pathologically because there were many cells and little stroma. The prognosis, therefore, was bad as there seemed to be little doubt that recurrence would speedily take place and that the patient would die with secondary deposits. She belonged to a

[1] A paper read at a meeting of the Royal Institute of Public Health held at Liverpool on July 16th, 1903.

restless family and as she was not tied down to any one place of residence her subsequent life was spent in many different houses, part of the time in England, part in Germany, part in France, and part in England again. Recurrence took place in the axillary glands on three occasions and further operations were undertaken to remove them, twice in Germany and once in England. No metastatic growths have occurred and for several years past the patient has appeared to be in perfect health; the original operation was 14 years ago.

CASE 2.—A married woman, whose mother had died from cancer, had her breast removed for malignant disease at the age of 45 years. She lived either in London or at her country house which was situated in its own well-wooded grounds where there was much stagnant water in the form of a lake and pools. The operation was performed early in the course of the disease and after her recovery she went back to her country house where she stayed late into the autumn during two successive years, spending the winter at home in town. Recurrence took place and she died in London with secondary deposits after a long and painful illness.

I believe that these two cases are comparable for the patients occupied similar positions in society, both had a family history of cancer, and both, being wealthy, led easy lives. The first patient was constantly changing her residence after the original operation, whilst the second returned to her former house and to her original habits. It is, of course, impossible to say what would have happened had the first patient remained in the same house, especially if it had been the one in which the disease had originally shown itself in her, but in all probability, looking to the microscopical characters of the growth, she would soon have had a more extensive infiltration of the axillary glands followed by secondary deposits, from which she would long since have died.

CASE 3.—A woman of spare build, aged about 50 years, and with a strongly tuberculous history had her breast amputated for a scirrhous carcinoma which had involved the axillary glands. She recovered, as is usual, and in due course returned to her home about 15 miles from London. She appeared to be in good health and for some months there was no sign of recurrence either in the breast or the axilla. Domestic worries then caused her a great deal of anxiety and in a few weeks she died speedily and painfully with secondary deposits in her bowel.

CASE 4.—About the same time as the previous case occurred another patient came under my care. She, too, was about 50 years of age and her breast was amputated for a scirrhous cancer which involved the axillary glands. She was spare in body and she had undergone a great deal of anxiety and hard work. As soon as her wound was healed she went into the country and has remained there ever since, being well fed and free from care. She increases steadily in weight and there are no signs of recurrence or secondary deposit though it is now nearly three years since the operation was performed.

I was well acquainted with the last two patients for many years and their physical conditions appeared to be so similar in every respect that I should have anticipated that the malignant disease would have run a like course in each. The patient in Case 3, however, lived under conditions which often made me think that it was not unlikely that she might develop a cancer for she had a small house which was systematically filled to its utmost capacity, an inferior water-supply, and she lived in a neighbourhood where cancer was abundant. I was not surprised, therefore, when she came for advice about a lump in her breast. I purposely mentioned that both patients were spare in build because it is a matter of common knowledge that cancer runs a more rapid course in those who appear robust and full-bodied than in the thin and anæmic. The only difference that I could discover between the circumstances of these two patients was that the one after operation passed from a condition of mental ease to worry and remained at home while the other went through a reverse process for she ceased to be worried and lived under entirely new surroundings. The one died, the other is alive and well.

CASE 5.—A man, aged about 60 years, came to me in August, 1901, complaining of a tumour in his neck. It was small, moveable, and superficially situated. I thought it was an enlarged tuberculous gland. He was very anxious to know if it was malignant as his wife had recently died from cancer of the breast and he was still living in the same house. I endeavoured to reassure him, but as it was unsightly I recommended him to have it removed. Business however called him to South Africa and he decided to wait until his return before the operation was performed. He came to me again in November, 1902, saying that so long as he was abroad the growth had remained moveable and had not grown much, but that since his return to London and to his old home it had increased in size and had become fixed. I operated as soon as possible and found that the growth was an endothelioma infiltrating the deep cervical fascia. Recurrence soon took place in the scar and the patient died two or three months afterwards.

CASE 6.—A man, aged 26 years, who had worked in an office in London, developed a sarcoma of the testicle. The gland was removed and as soon as the wound had healed he threw up his office work and went to South Africa where he remained free from further trouble for six years. The other testicle then became affected and it was removed last year.

CASE 7.—A woman, aged 27 years, had some sarcomatous glands removed from her neck in 1892. She married shortly after the operation, changed her home, and her county, and only now in 1903 does she show any further trace of malignant disease in the form of a recurrence in the scar.

Looking to the short interval which is common in cases of sarcoma of the glands between the primary and secondary growths I am compelled to ask whether the interval would have been nearly as long in these two cases if the patients had remained at home and had not so completely changed their surroundings and manner of life?

We do not know all, or perhaps indeed any, of the factors which enter into the etiology of cancer, but it seems as if there were both predisposing and exciting causes. The predisposing causes may be associated with some chemical change in the tissues which enable them to support the life and growth of an organism, and this organism in turn may react upon the epithelial cells and the connective tissues to make them multiply out of all due proportion. The more I see of cancer cases, the more I am struck by the frequency with which a widow or widower dies from malignant disease when the husband or wife has previously died from cancer. Such cases seem at present to be more than coincidences and they point no doubt to some common factor in the joint lives of the sufferers which has allowed their decadent epithelium or connective tissue cells to run riot. The factor may be predisposing, as is the more likely, in which case it may be of a chemical nature associated with individual alterations in diet or habits; or it may be an exciting cause such as a parasite or other infective agent.

I have recently had an opportunity of calling attention in the *Practitioner*[1] to a village where some of the inhabitants thought that cancer was becoming unduly prevalent. I carefully sifted the facts and could only come to the tentative conclusion that the increase in cancer was accidental, though it was undoubtedly true that there had been far too many cases of this disease in the village during the last few years. The inhabitants were obliged to drink the water of highly polluted wells and the general standard of health was decidedly below the average. But a new water-supply is going to be introduced and it will be very interesting to determine whether the cancer mortality then returns to its former rate in this village, for it used to be little, if at all, above the average for other rural districts. If this decline in the cancer mortality should occur there will be reason to suppose that a prolonged lowering of the bodily health may predispose to malignant disease, just as we know that in some cases grief and worry will act as predisposing causes of cancer. At any rate, I can well imagine that a person returning to such a place after an operation for cancer might very well suffer from a recurrence sooner than one who was placed under more favourable surroundings.

There is no doubt that a malignant growth does not render a person immune to cancer in the same way that an attack of small-pox, scarlet fever, or syphilis protects, at any rate for a time, from another attack of the same disease. Recurrences and secondary growths are proofs of this fact, yet recurrences and secondary growths are each of two kinds which must be clearly distinguished from one another. A recurrence taking place in or near the scar or in a neighbouring lymphatic gland shortly after an operation for cancer is a continuation of the original disease, for it is due to the incomplete removal of the original growth. But if there is

[1] May, 1903.

a clear interval of a year or even of several months in which no evidence of recurrence is forthcoming it would seem that the return must be looked upon as a reinfection. In the same manner metastatic deposits are due to a transference of cells from the original growth which has not been removed early enough. But this explanation is insufficient to account for cases where secondary growths have taken place two, three, or more years after removal, especially when the patient has remained well and has increased in weight during the greater part of the interval. The recurrence in these cases must be attributed to reinfection and the cancer is a new growth in every sense of the term.

I should be especially pleased to receive information about cases of malignant disease where recurrence or metastatic growths have occurred either immediately or remotely. I mean by immediate cases those in which there are further signs of malignancy within a year of an operation performed by a competent surgeon in an early case and upon a part of the body where he might reasonably expect to remove the entire disease, as in a scirrhus of the breast with a moderate affection of the axillary glands. In such circumstances I want to ascertain whether the recurrences or secondary deposits are more frequent in people who go back to their former homes and to the daily duties of the lives to which they had been accustomed, or whether they are more common in those who from whatever cause have made a radical alteration in their mode of life or who have had occasion to change their place of abode? The questions are doubtless difficult to answer and it would be necessary to tabulate a large number of cases before any conclusion could be arrived at. But some of us may have the opportunity of occasionally comparing cases which have so many points in common as to be fairly comparable. If such a group of cases should present itself for examination it would be desirable to ascertain whether any special factor was present in the cases of early recurrence which was absent in those who remained free from further signs of cancer. In Cases 1 and 2 which are recorded above, the points of distinction seem to be the radical alteration in the life and habits of the patient who recovered, whilst the patient who died pursued the even tenour of her way. In Cases 3 and 4 it appeared as if the sudden onset of domestic worry in a woman who had previously led a most uneventful life (Case 3) was the determining cause of the recurrence, whilst the other patient (Case 4) was relieved from the anxiety of earning her daily bread and attained a more healthy state of life.

Metastatic growths are due to the migration of cancer cells from a pre-existing centre of malignant disease. This migration of cells must be very great under ordinary conditions and must be taking place in every direction. But secondary growths are not universal in every case of cancer, nor are they always very widely distributed. The normal tissues therefore must have the power of destroying the cancer cells which become lodged in them. The destructive power is limited, no doubt, and varies in each individual, but it is quite legitimate to suppose that the sudden lowering of the general vitality might arrest it and so allow of a sufficient growth of cancer cells to produce an enlargement of the lymphatic glands or recurrence in a distant organ. The chief fallacy involved in any examination of cases of early recurrence lies in the fact that the original growth has not been completely removed, but this error should be negligible when the operation has been performed early by a surgeon who is accustomed to operate upon cases of malignant disease.

Cases of recurrence occurring long after the original operation and when a cure seems to have been obtained are most interesting and are well worthy of a more careful examination than they appear to have received up to the present time, the main points to be determined being, as in the former set of cases, the changes which have taken place in the habits and habitation of the individual. Such were Cases 6 and 7 of this series in which both patients had undergone a complete change of environment. Environment, too, seems to have exercised some influence upon the malignant growth from which the patient in Case 5 suffered. The tumour grew whilst he was in London, remained quiescent when he was abroad, and grew again rapidly when he returned home. In this case there may have been some individual factors as well as the mere surroundings to be taken into account, because the patient returned to a house where his wife had previously died from cancer and almost certainly resumed a mode of life which must have been completely interrupted whilst he was abroad. A chemical theory of the origin of cancer would therefore explain the circumstances in this case as well as, or perhaps better than, any theory of reinfection.

Everyone knows that malignant growths do not run a uniform course even when they seem to be structurally identical, but no one, I think, has made any attempt to determine whether the irregularities are due to the malignant growth, to the individual in whom it grows, or to the surroundings of the individual. I am here engaged in considering the individual and his surroundings rather than the growth from which he is suffering, for it seems extremely desirable to ascertain whether the recurrences in malignant disease are really as capricious as they are generally supposed to be or whether there may not be some underlying reason to explain why they appear in some persons but not in others and at such varying times after the original operation. The cases which I have brought forward raise a suspicion in my own mind that recurrence in cancer is not so arbitrary as it appears at first sight to be, but that there may be some underlying causes, such as locality and alterations in the bodily condition of the patient, which may accelerate, retard, or even entirely prevent its appearance. The subject, however, must be approached with quite an open mind and there must be stronger grounds for the suspicion before it is acted upon. Cancer patients have quite enough to bear as it is and I should be the last to add to their sufferings by recommending them to break up their homes as a routine proceeding after every operation for the removal of a malignant growth. Every now and then cases occur in which such a radical change of surroundings does take place and these are the cases which I should like the medical attendants carefully to watch.

Chandos-street, W.

HEPATECTOMY FOR THE REMOVAL OF RIEDEL'S LOBE.

BY CHARLES BARRETT LOCKWOOD, F.R.C.S. ENG.,
ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL; PRESIDENT OF THE ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

ALTHOUGH Riedel's lobe of the liver is not a common abnormality, nevertheless it has to be taken into consideration in the diagnosis of abdominal tumours and circumstances may justify its removal. Riedel's lobe of the liver is a tongue-shaped piece of healthy liver which hangs from the right lobe. The tongue is continuous with the right lobe of the liver immediately to the right of the fissure for the gall-bladder. When I excised Riedel's lobe the gall-bladder formed the left end of the incision into the liver and care had to be taken not to transfix it with the needle. Riedel's lobe may be united to the right lobe of the liver by a broad thick base, such as is shown in Dr. Arthur Keith's drawings[1] and in all of the eight figures which Riedel gives in his original communication. The title of this is almost an epitome and is as follows: "Ueber den zungenförmigen Fortsatz des rechten Leberlappens und seine pathognostiche Bedeutung für die Erkrankung der Gallenblase nebst Bemerkungen über Gallenstein-Operationen."[2] The term "tongue-shaped process" gives the mind a very clear idea of the usual shape. But Riedel's lobe may be united to the right lobe of the liver by a base which has a broad shallow groove which is best seen in front. This was its condition in the case in which I performed hepatectomy. But sometimes Riedel's lobe has a distinct neck and hangs from the liver like a huge polypus. I recollect seeing such a one in the dissecting-room when I was demonstrator of anatomy, and in 1896 I mistook another one of the same kind for a distended gall-bladder. The circumstances of this case were briefly as follows.

A middle-aged woman had suffered for many months from a pain a little below the eighth costal cartilage of the right side. Inasmuch as all the symptoms clearly pointed to the gall-bladder, a surgeon in the country performed laparotomy. The gall-bladder contained no stones but was

[1] The Nature and Anatomy of Enteroptosis (Glénard's Disease), THE LANCET, March 14th, 1903, p. 709, Figs. 14 and 15.
[2] Berliner Klinische Wochenschrift, 1888, pp. 577 and 602.

full of bile which could be expelled by squeezing. The abdomen was closed without anything more being done to the gall-bladder. The pain having persisted I was asked by Dr. W. J. O'Meara to see the patient. The clinical symptoms pointed very clearly to an affection of the gall-bladder and, in addition, an oval tumour exactly like a distended gall-bladder could be felt beneath the right linea semilunaris. When the abdomen was opened a large and slightly distended gall-bladder was met with, but it was clearly not hard enough to be felt through the abdominal wall. At the right of the gall-bladder a Riedel's lobe extended beneath the right linea semilunaris into the abdomen for at least three inches beyond the costal margin and was attached to the liver by a thick neck. In Sir Lauder Brunton's case an elastic swelling was felt in the right iliac region of a woman. It was diagnosed as an enormously dilated gall-bladder, but when the patient had died from malignant disease a very long gall-bladder with a correspondingly elongated right lobe of the liver were discovered.[3] Clearly the latter was the tumour which had been left before the operation. In my case the flaccid gall-bladder was explored but no stone was discovered. It contained several ounces of thin bile-stained mucus. A drain was inserted and kept in for a fortnight. Dr. O'Meara informs me that the patient is cured of her pain and discomfort which had evidently been caused by catarrh of the gall-bladder.

This operation was performed in 1896 and although I perform many abdominal operations, nevertheless I did not again encounter Riedel's lobe until nearly six years had elapsed and this was the one in which hepatectomy was performed. The patient was a young unmarried woman who complained of abdominal pain. This pain was said to be continuous and situated in the right side and to be worst at McBurney's point. A tumour could be felt just outside the middle third of the right linea semilunaris. The tumour moved with respiration; it was smooth and painless and slipped back towards the right lumbar region in just the same way as a displaced and moveable kidney does. Moreover, it seemed to be separated from the liver by an area of resonance. Therefore a displaced and moveable kidney was diagnosed and a belt and horseshoe pad were applied, but without any relief. The pain was so persistent at McBurney's point and accompanied by so much flatulence and constipation that the suspicion arose that the case might be one in which the displaced and moveable kidney had become complicated with appendicitis. After having had the young woman under observation for some days and after having examined her under an anæsthetic, this suspicion seemed to be strengthened and the appendix was removed on July 19th, 1902, through the usual oblique incision. Both macroscopically and microscopically it proved to be normal. But this operation also gave me an opportunity of ascertaining the nature of the tumour which could be felt just to the outer edge of the right rectus. Twice before I have had to remove displaced and moveable kidneys because they were hydronephrotic; moreover, they sometimes contain calculi. However, I was rather surprised to find that the tumour hung down from the right lobe of the liver and was attached to it by a thick neck. The exploration and removal of the appendix caused but little disturbance and the patient went away wearing a belt and horseshoe pad. After a while she returned still complaining of the pain in her right side which, she said, made her life a burden to her and hindered her from earning her living.

In October, 1902, I showed the patient to my colleagues in consultation and they agreed with me that the removal of the tumour was justifiable in the circumstances. However, before operating a period of rest in bed was tried and resulted in some abatement of the pain, but she came back again complaining that the pain returned as soon as she tried to work. Therefore on Feb. 28th, 1903, an incision three inches long was made into the abdomen opposite the middle of the right linea semilunaris. The tumour was easily withdrawn until its junction with the right lobe of the liver came into view. The junction was marked by a broad shallow groove. Anterior and posterior incisions were carried obliquely into the base of the tumour from without inwards so as to remove it and to leave a pair of flaps of liver substance. Some of the hepatic vessels bled and were secured with an encircling suture of No. 00 twisted silk. This suture was buried in the liver substance by transfixing the latter with a small, fully curved Hagedorn's needle. When the bleeding had been stopped in this manner the flaps of liver substance were brought together with about eight or ten sutures of No. 3 twisted silk. This thickness was chosen to try to prevent the sutures cutting out through the liver substance, but I found the healthy liver to be much tougher and much less vascular than in cases in which I have had to explore it to find abscesses or hydatids. The operation was concluded in the usual way by closing the layers of the abdominal wall with rows of buried silk sutures. The patient made a rapid and perfect recovery and when last seen (four months after the operation) was well and free from pain. The gall-bladder was carefully examined and was found to be perfectly healthy, a point of some importance, because Riedel assumes that the formation of the lobe is related to the enlargement of that reservoir.[4]

I have purposely called the lobe of the liver which was excised by Riedel's name. The name "linguiform[5] process" which he originally gave to it does not, to my mind, indicate all the shapes which it may assume. If the process always became wider at its junction with the liver and always wanted a groove it would be more like a tongue and could not easily be confounded with a displaced and moveable kidney. Moreover, the term "Riedel's lobe" has other advantages, for it does not suggest any theory of causation or any clinical peculiarity. In my case there was nothing to suggest "a partial or local ptosis of the liver" (Treves) or that it was due to tight-lacing (Quincke and Hoppe-Seyler). We are indebted to Sir Frederick Treves[6] for one of the best accounts of Riedel's lobe. In this the "wholesale excision" of the adventitious lobe is pronounced to be unjustifiable. Everyone would agree with this opinion when, as in my first case, there is disease of the gall-bladder, especially if it be true that cholecystotomy is followed by disappearance of the lobe. But in the instance under consideration the gall-bladder was perfectly healthy. The patient was fully conscious of the presence of the tumour and, whether rightly or wrongly, attributed the persistence of her sufferings to its presence. Doubtless our opinions upon the question of the propriety of the operation of excision must be greatly biased by our estimate of its dangers. A fair experience of operations upon the liver has led me to believe that it is an organ which is singularly tolerant of surgical interference and that hæmorrhage from its substance is easily controlled and not to be dreaded.[7] Such were the reasons which prompted me to excise the tumour rather than to resort, as Billroth and others have done, to an attempt at suturing.

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[3] THE LANCET, Feb. 1st, 1896, p. 293, and in the Transactions of the Medical Society of London, vol. xix., p. 116.

[4] Erfahrungen über die Gallensteinkrankheit, Berlin, 1892, p. 57.

[5] Synonyms: appendicular lobe, floating lobe.

[6] Ptosis of the Liver and the "Floating Lobe," THE LANCET, May 12th, 1900, p. 1339 et seq.

[7] Riedel's lobe was excised by Langenbuch in 1887 and the patient recovered after recurrent hæmorrhage. Bastianelli removed it in 1895 and controlled the hæmorrhage with a cautery. Terrier et Audray, Chirurgie du Foie, Paris, 1901, p. 144.

ENZYMES IN TUMOURS.

BY ARTHUR HARDEN
AND
ALLAN MACFADYEN.
(From the Jenner Institute of Preventive Medicine.)

THE study of the nature of malignant processes has been mainly devoted to the investigation of the morbid anatomy of the affected tissues and of the cancer cell in particular, whilst research as regards the origin of such processes has been largely based on a parasitic theory of their origin. There is, however, another factor of which our knowledge is at present scanty and imperfect—viz., the functional modifications that take place in the cellular elements of the tissues when diseased. A more intimate knowledge of the metabolism and more particularly of the intracellular metabolism of the tissues would throw light upon many points that remain obscure and perplexing to the clinician and pathologist. The bio-chemical study of any disease process constitutes a distinct and essential branch of inquiry.

In malignant disease, for example, the biological and chemical properties of the tissues involved undoubtedly deserve careful study and equally with other possible factors require investigation. For this purpose one of the most feasible methods would appear to be the direct study of the intracellular physiology of the epithelial cells in health and disease, as the problems are ultimately cellular ones whether we regard the causes or their effects. Researches of a conjoint character in this direction have been in progress for some time on the part of the Bacteriological and Chemical Departments of the Jenner Institute. The normal and diseased epithelial cells have been submitted to the disintegrating processes employed at the institute in the study of intracellular constituents generally and an examination has been made of the fresh cell juices obtained by this procedure. The animal experiments which have been carried out will form the subject of another communication. The chemical examination of the cell juices has been made with special reference to the nature of the enzymes present in normal and diseased epithelial tissues with a view to determining how far the results might agree or differ. The methods employed have been as far as possible of a quantitative character. The progress of the investigation has been necessarily slow owing to the difficulty experienced in obtaining a regular supply of material. The account just published by Dr. Buxton of his preliminary researches in the same direction has led us to put the facts we have so far obtained on record.[1]

The methods employed by Dr. Buxton differ from ours in the following respects: his material was obtained from the tissues by extraction methods; only qualitative tests were made for the presence of enzymes and control experiments were not in the first instance carried out on normal epithelial tissues. The enzymes so far detected by Dr. Buxton were a proteolytic enzyme, an amylase, a lipase, a catalase, a peroxidase, and possibly an oxidase.

The experiments we made were with cell juices obtained by cold grinding methods from normal as well as from diseased epithelial tissues and the tests were as far as possible of a quantitative character.

The following is a brief summary of the results. The control experiments were necessarily made on the epithelium of the lower animals, the normal tracheal epithelium of the ox being selected for the purpose in preference to the intestinal epithelium on account of the complications presented by the various ferments of the digestive tract. The normal epithelium of the trachea of the ox has so far been found to contain enzymes of the following character: an invertase, an amylase, a maltase, and a proteolytic enzyme, whilst lactase and rennin have been tested for without success. The diseased epithelial tissues examined were from the human subject and consisted mainly of cancerous tumours of the breast. The enzymes that have so far been detected in such cancerous tissues have been found to be of the following character: an invertase, a maltase, an amylase, proteolytic enzymes acting in acid and alkaline solutions respectively, a catalase, and an oxidase together with traces of a lipase and possibly of a peroxidase. A lactase has not so far been detected. There can be no attempt at present to attach any significance to these results. It is simply sufficient to put them on record with those of other observers.

[1] Journal of Medical Research, Boston, No. 3, 1903.

THE ST. FRANCIS HOSPITAL FOR INFANTS.—In the unavoidable absence of H.R.H. the Duchess of Teck, the president of the hospital, the Duchess of Portland on July 15th opened the St. Francis Hospital, Denning-road, London, N.W., which is said to be the first of its kind established in Europe. The objects of the institution are: (1) to place the management of infants on a basis of scientific hygiene; (2) to place the treatment of disorders and diseases of nutrition occurring in infants upon a system in harmony with modern investigations; (3) to investigate and to demonstrate the means by which the present disease and mortality in infants may be prevented; and (4) actively to combat the conditions which are responsible for the physical, mental, and nervous degeneration of the population. The hospital is at present limited to 40 beds. In replying to a vote of thanks, the Duchess of Portland remarked that at Welbeck she presided over a "mothers'" gathering and at the "teas" held in connexion with such gatherings mothers gave their infants strong tea and plum cake, which Her Grace evidently did not consider intelligent hygienic treatment of the children.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

NORFOLK AND NORWICH HOSPITAL.

A CASE OF LARYNGEAL STENOSIS FOLLOWING TRACHEOTOMY; INTERMITTENT INTUBATION FOR 129 DAYS; RECOVERY.

(Under the care of Dr. S. H. LONG.)

FOR the notes of the case we are indebted to Dr. S. Gurney Champion, late house physician.

On August 26th, 1902, a boy, aged six years, was admitted to the Norfolk and Norwich Hospital on the sixth day of his illness suffering from laryngeal and pharyngeal diphtheria. 9000 units of anti-diphtheria serum were at once injected under the skin of the abdomen. During the next few hours symptoms of laryngeal obstruction became urgent and tracheotomy was at once performed, a No. 2 Parker's silver tube being introduced. The obstructive symptoms were at once relieved by the operation. A culture taken on blood serum from the trachea showed a mixed growth of diphtheria bacilli and staphylococci. On the following day, the temperature having risen to 102·4° F., 3000 units of antitoxin were injected, with a resulting fall in temperature. On the third day, 60 hours after operation, the tracheotomy tube was removed, but it had to be replaced at the end of an hour on account of dyspnœa, recession of the lower part of the thorax, and restlessness; when again removed a few hours later the same symptoms shortly returned. During the next ten days this process of removal and re-introduction of the tube was necessitated by the frequent recurrence of the former symptoms. Various methods were resorted to with the object of alleviating the laryngeal spasm and encouraging oro-nasal respiration, such as giving the child a trumpet to blow, the use of a tracheal cannula with an opening in its convex surface so as to allow air to pass up and down to and from the mouth (with the tube *in situ* gradually increasing layers of gauze were placed over its opening in order to diminish the air-supply), and the administration of drugs, such as belladonna, opium, bromides, chloral, &c. But success did not attend these efforts. At first the child was able to go for from half an hour to three hours without the tube until on one occasion the interval was lengthened to 25 hours, but he was rarely able to sleep for more than a few minutes at a time without the tube *in situ*. Gradually increasing difficulty in breathing, accompanied by recession and restlessness, invariably awoke him. Respiration was carried on almost entirely through the wound which was now gaping, red, and inflamed through the constant friction of the cannula. During the latter part of this time nasal feeding was resorted to on account of regurgitation of fluid through the tracheotomy wound. Seven days after the first dose of antitoxin a well-marked urticarial eruption made its appearance, scattered over the abdomen and lower extremities. On the thirteenth day the symptoms became considerably worse and every effort to dispense with the tube for more than a few minutes at a time having failed intubation was decided upon and successfully performed. A No. 8-9 O'Dwyer intubation tube was easily introduced and the silk fixed to the head of the tube was left in position and attached to the patient's ear. No anæsthetic was employed. The previous symptoms were at once relieved and but for a rise of temperature to 101·6° and inability to swallow liquids the child was quite comfortable. After an interval of four days the tracheotomy wound healed and the intubation tube was removed. It was intended to replace it, but as the child seemed quite comfortable, breathing naturally, it was left out. At the end of three-quarters of an hour he suddenly became dyspnœic and in about three minutes he was livid. Just as the breathing had ceased the assistant house surgeon arrived; there was no time to perform intubation, so he cut down on the old wound in the neck and inserted a tracheotomy tube.

Respiration returned after artificial efforts had been resorted to for a few minutes. Some hours later the tracheotomy tube was removed and a No. 8–9 intubation tube re-introduced. Extubation took place after the tube had been worn for six days. The tracheotomy wound was again healed. An interval of three weeks then elapsed before intubation was repeated, during which period the condition of the child altered considerably from time to time. A varying amount of recession and stridor was always present during sleep, sometimes sufficient to awaken him, but during waking hours the breathing was practically unembarrassed. Dr. Champion was reluctant to re-introduce the intubation tube, trusting to the symptoms passing off. This delay, as subsequent events proved, was unfortunate. An increase of the symptoms at the expiration of three weeks called for operative interference. It was found impossible to introduce the former-sized tube (No. 8–9) into the larynx. Chloroform was administered and with considerable difficulty a No. 2 tube was inserted and left in for a few minutes; it was then withdrawn and replaced by a No. 3 tube. The tube was tightly gripped when about half or three-quarters of an inch from the upper opening of the larynx. A good deal of force was needed to pass this constriction. After four days the intubation tube was removed and was replaced by a No. 8–9 without any difficulty or tangible evidence of stenosis. Extubation followed after an interval of three days. The child was then carefully watched for symptoms of returning stenosis, which were first noticed after an interval of eight days in the shape of breathlessness on the least exertion, with very slight recession of the lower ribs and stridor when asleep. Intubation was at once performed, the same size tube (No. 8–9) being replaced; a little pressure was required to enable the tube to pass the constriction at the upper part of the larynx. After three days the tube was removed, but it was again replaced on account of the reappearance of slight symptoms of stenosis on the eighth day. Extubation took place two days later. On each occasion intubation had been followed by a rise in the temperature to 102° or 103°, with a corresponding rise in the pulse-rate. The tube also gave rise to a considerable amount of irritation, as evidenced by a copious expectoration of watery, sometimes very offensive, mucus which often literally poured from the child's mouth. These symptoms always disappeared after removal of the tube, but now the temperature, instead of falling as it had done previously after extubation, persisted, oscillating irregularly between 100° and 104·2° during the succeeding fortnight, and at the same time the child was first noticed to have a watery, serous, and slightly offensive discharge from the nose. This was thought probably to be due to a diphtheritic infection of the nasal mucous membrane, but a culture showed a mixed growth of staphylococci and streptococci, but no diphtheria bacilli. There were no signs of heart or lung complication or evidence of paralysis. Local antiseptic irrigation of the nose was employed and 10 cubic centimetres of anti-streptococcic serum were injected subcutaneously three times daily for the next three days and then 6000 units of anti-diphtheria serum were given as the rise in the temperature still persisted. Either as a result of, or in spite of, this treatment the temperature fell to normal and the nasal discharge ceased. When the child had been 14 days without the tube slight symptoms of returning stenosis were observed. Intubation followed for three days. A second antitoxin eruption of an urticarial nature which covered the child from head to foot now made its appearance seven days after the first of these injections of anti-streptococcic serum. A period of nine days then elapsed before slight recession when asleep necessitated the introduction of the intubation tube for three days. A No. 6–7 tube was used, all attempts to get in the larger size failing. Ten days later this process was again repeated. Shortly afterwards the patient was covered with an erythematous rash, scarlatiniform in character, but there were no other symptoms of constitutional disturbance. Intubation followed 11 days after the previous extubation and it was again repeated for the last time 17 days later. Five weeks afterwards, on Feb. 20th, 1903, after a stay of six months, the patient was discharged from the hospital well. The intubation tube was worn intermittently for 129 days. The child continued to attend the hospital, however, as an out-patient in order to be under observation. On June 20th, four months after his discharge from the hospital and 22 weeks after the last intubation, his mother reported him to be very short of breath on exertion, but when in repose the breathing is perfectly natural and quiet. When the weather is wet his breathing is invariably "stuffy" and noisy. When in a temper recently he became so blue in colour as to alarm her considerably. At night the child is frequently awakened by difficulty in breathing but goes to sleep again at once. The voice is somewhat husky but otherwise natural.

Remarks by Dr. CHAMPION.—The cricoid cartilage on either of the two occasions when tracheotomy was performed was not divided. The stenosis was evidently at the level of this cartilage and in all probability was due to disuse of the larynx during the time the tracheotomy tube was worn. It will be seen that intubation was performed 11 times and on each occasion the dyspnœa was promptly and efficiently relieved. Extubation was always performed with the extractor except when the string was left attached to the tube on the first two occasions. Immediately succeeding each intubation a rise in temperature was observed which persisted as long as the tube remained *in situ*, falling to normal directly after extubation. Every time the tube was introduced there was, I think, a considerable amount of laceration done to the mucous membrane of the larynx. Frequently pressure was required to pass the constriction, while there was always a little bleeding both at the time and for a day or two after the introduction of the tube, blood-stained mucus being expectorated. No anæsthetic was employed on the first two or last three occasions, but at other times chloroform was administered as the child was very nervous and had always been much exhausted after the introduction of the tube when not anæsthetised. The same applies to extubation. With liquids the patient always had difficulty in coördinating the movements of the muscles of deglutition, but when the tube was in place no trouble was experienced with solids or semi-solids. The device of keeping the head lower than the body when drinking (Casselberry's method) proved to be of no avail. There was, of course, complete aphonia while the tracheotomy tube was worn and this continued for the first three months of the child's stay in hospital. From this time onwards during the intervals the intubation tube was left out and the voice gradually returned; at the end of six months phonation was quite distinct but occasionally a little hoarseness was noticeable, especially if the voice had been used for any length of time.

I am indebted to Dr. Long for permission to publish this case and for his kind assistance. My thanks are also due to Mr. J. H. Wroughton, the present house physician, who performed the last three intubations and is responsible for the notes of the case during the latter part of the patient's stay in hospital.

Medical Societies.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Presidential Address.—Female Nursing of the Male Insane.—Tumours of the Brain in Asylum and Hospital Practice.—Hebephrenia and Katatonia.—Mongolian Imbecility.—Double Consciousness.

THE sixty-second annual meeting of this association was held at the rooms of the Medical Society of London on Thursday and Friday, July 16th and 17th, when a long list of administrative and scientific questions was disposed of. During the Thursday morning session the chair was occupied by Dr. J. WIGLESWORTH, the retiring President, the new President, Dr. ERNEST W. WHITE, controlling the remainder of the meeting. The new council was unanimously agreed to, as were also the reports of the treasurer, the auditors, and of the council to the annual meeting.

Dr. WIGLESWORTH proposed a vote of thanks to the council and officers of the association for their exertions during the past year, which was warmly agreed to and acknowledged. Owing to the meeting being held a week earlier than usual the Gaskell prize examination had not yet been held. No essays had yet been received in competition for the bronze medal. The reports of the standing committees—parliamentary and educational—were

submitted and approved. A long discussion ensued upon the report of a committee appointed to consider the rules of the association which somewhat extensively modify the government of affairs. The majority of the recommendations were agreed to and Dr. A. R. Urquhart was thanked for his work in the matter. Dr. T. A. Chapman's report upon the report of the late tuberculosis committee was approved and the cordial thanks of the meeting were tendered to Dr. Chapman for his patient labours. With slight modifications the parliamentary and educational committees were reappointed. It was unanimously resolved to send a letter of congratulation to Sir Charles Bagot on the honour which had been bestowed on him and wishing him many years of pleasant retirement.

At the conclusion of this business Dr. WHITE took the chair and delivered his presidential address. This dealt first in sympathetic terms with the disastrous fire at Colney Hatch Asylum which resulted in the loss of 51 lives. He thought that the lessons afforded by it were: (1) that all temporary buildings were unsuited to the insane; (2) that provision for dealing with fires must be complete in all institutions; (3) that all stoke holes, furnaces, and smoke shafts must be abolished and the heating obtained by live steam from a central station; and (4) that all alternative exits must be systematically used by patients for egress, otherwise they would refuse to go out by them in case of fire. In conclusion, he spoke with admiration of the heroic conduct of Dr. W. J. Seward and his staff. Reference was made to the large percentage of deaths from pulmonary tuberculosis among the insane and the probable causes and remedies were discussed. Other subjects dealt with in the address included the advantages of electric plant in asylums, the increasing mortality from dysentery in those institutions, the appointment of pathologists to the large insane hospitals, and the obituary for the year among the specialty. The increase of insanity and its contributory causes were elaborated with considerable minuteness, the latter including the influence of heredity, late marriage, and the increase in the number of congenital imbeciles. Inherited syphilis, a tuberculous tendency, and the abuse of alcohol were also shown to contribute to this increase. The address concluded with a detailed consideration of the treatment of various kinds of insanity and a *résumé* of Lord Carrington's Bill recently introduced into the House of Lords, the President declaring that there was more in the Bill than met the eye. Was there, he asked, any guarantee that the superintendent, who would also be resident medical officer of the receiving house, would have been properly trained in the treatment of mental diseases in a public institution for the insane? Would the visiting medical staff appointed have had proper experience in the treatment of mental diseases in public asylums? By Clause 11 acute mental cases could be detained in those receiving houses for treatment practically as long as the visiting committee, acting on the advice of the medical staff, thought fit; but would the heart of the metropolis be suitable for those institutions? The scheme really meant that those receiving houses in London were to be the acute hospitals for the insane and teaching centres for the medical schools, the present large asylums being utilised only for chronic cases. But few would admit that the heart of the most populous city in the world was the proper place for the treatment of the acute insane. Where were they to have the benign influence of the sun, fresh air, and exercise, with beneficent employment and amusement? In Glasgow there were receiving houses for classification of the insane prior to distribution within a week to their various asylums, but those were not what the London institutions would be, hospitals for the insane where the patients could be detained for treatment six weeks, or three months, or even longer.—A cordial vote of thanks to the President was carried on the proposition of Dr. BLANDFORD, seconded by Dr. T. OUTTERSON WOOD.

Dr. A. R. TURNBULL read a paper entitled "Female Nursing of the Male Insane." It described a visit which he, in company with Sir John Sibbald, Dr. Fraser, and Dr. Robertson, paid to the asylum at Meerenberg, near Haarlem (which provides for 1300 patients, of whom 600 are males), and to the Wilhelmina Hospital, Amsterdam. At the former place the staff on the male side consists of 57 females and 46 males. Two wards for restless cases were staffed with males only, but in all the other male wards the staff was mixed male and female and Dr. Turnbull narrated the details of the administration and working of the institution. The Wilhelmina Hospital consisted of a block for medical cases, one for surgical, and another for mental cases (male and female). Here also it was considered that the restless cases were suitably managed by men. There were a few separate small rooms for the treatment of troublesome or noisy cases. Dr. Turnbull concluded by stating the conditions and regulations at the Fife and Kinross District Asylum, and advocated a larger employment of properly qualified female mental nurses for male cases of insanity.—An interesting discussion, which ventilated all sides of the question, ensued, after which an adjournment was made to the annual dinner at the Whitehall Rooms, Hôtel Métropole.

On Friday the first paper was one by Dr. F. W. MOTT, F.R.S., on Tumours of the Brain in Asylum and Hospital Practice. This was illustrated by a large number of lantern slides and the discussion of the paper was carried on by the PRESIDENT, Sir VICTOR HORSLEY, Dr. WIGLESWORTH, Dr. BEEVOR, Dr. G. H. SAVAGE, Dr. OSWALD, and Dr. ROBERT JONES.—Dr. MOTT replied in detail.

Dr. LEWIS C. BRUCE and Dr. A. S. M. PEEBLES communicated a paper entitled "Clinical and Experimental Observations on Hebephrenia and Katatonia" which was illustrated by diagrams.—Dr. JONES, Dr. W. LLOYD ANDRIEZEN, Dr. H. F. HAYES NEWINGTON, and Dr. MOTT discussed the paper and Dr. BRUCE replied.

Dr. C. H. FENNELL read a paper entitled "Mongolian Imbecility," and it was commented upon by the PRESIDENT, Dr. FLETCHER BEACH, Dr. ANDRIEZEN, Dr. C. S. MORRISON, Dr. JONES, and Dr. MOTT.

Dr. ALBERT WILSON read notes and observations upon a case of Double Consciousness. The patient, a young girl, had a whole series of subconscious states from which she would occasionally lapse back into her normal self. She had been living in an abnormal condition for years, making her own way in the world. Each substage appeared and disappeared at irregular intervals and each substage had its own characters. When any substage was resumed it was the point at which it left off, so that each substage was absolutely independent of another substage. Each personality was complete in itself. The same applied to suffering. The peculiar mental cycle commenced after an attack of influenza at 12½ years of age There was great trouble in the family shortly before the birth of the patient and the home had to be broken up.—An interesting discussion ensued which was taken part in by the PRESIDENT, Dr. C. LLOYD TUCKEY, Dr. MEIKLE, Dr. T. D. SAVILL, Dr. SCOTT, Dr. ANDRIEZEN, Mr. V. PANTIN, and Dr. JONES.—Dr. WILSON replied.

A large number of members of the association, by the kind invitation of Dr. and Mrs. H. Corner, were present at an "At Home" at Brook House, Southgate, and many members also availed themselves of the courteous invitation of the medical superintendent, Dr. Ernest White, and the committee of the corporation of the City of London, and travelled to Stone Asylum which they inspected and where they were most hospitably entertained.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on July 9th, Dr. Heywood Smith, President, being in the chair.—Professor J. W. Taylor of Birmingham in opening a discussion on Lacerations of the Cervix and their Consequences, said that these accidents were largely preventable and, owing to better teaching of obstetrics and better practice, were much less frequent in some districts than in others. The larger number of them were of a minor degree and, like limited tears of the perineum, generally healed in the right direction and were of little importance save as possible channels of infection; but the more extensive tears, besides being a possible cause of fatal puerperal septicæmia, might lead to subinvolution, to serious menorrhagia, to descent and flexion of the uterus, to severe and persistent pain, to cervicitis, abortion, or sterility, and, though he thought very rarely, to epithelioma. The results of tears involving the uterus only differed widely from those extending beyond it. The former, in nearly all cases, could be completely cured by plastic repair of the laceration combined, perhaps, with the preliminary use of the curette. A wedge-shaped excision was, however, often wanted to bring the parts into apposition and the angle of the tear must be entirely removed. But when the injury extended into the vaginal vault and broad ligament, however perfectly the uterus was repaired, its malposition and the drag on the cicatrix in the broad ligament were a source of constant pain and discomfort. He had sometimes tried

to re-attach the broad ligament to the cervix at the proper level, but had had but partial success, and in the worst cases he thought that complete relief could only be obtained by the removal of the uterus. The most careful diagnosis in the strictest sense was, of course, necessary before such a measure was adopted. It was remarkable that while lacerations involving the bladder and rectum might afterwards give rise to no pain, an aseptic tear, though it had healed throughout, might be a source of constant discomfort from the drag on the cicatrix. Absolute fixation of the uterus was sometimes, even in the worst cases, a safeguard against pain.—Dr. William Duncan said that one serious immediate result of cervical laceration had, no doubt inadvertently, been omitted from Professor Taylor's introduction—namely, severe hæmorrhage. It was held that such bleeding could be arrested by hot water or, at all events, by plugging, but he thought it better surgery to secure the bleeding point and to stitch up the laceration at once. He quite agreed that the majority of cases required no treatment whatever, but severe tears might cause all the evil consequences stated. The thinning of the uterus in the neighbourhood of the tear, a point he had not heard described before, would account for a furious hæmorrhage he had encountered while dilating a previously torn cervix with a view to curetting the uterus for subinvolution, menorrhagia, and leucorrhœa; he was able to secure the bleeding point with forceps which he left on for 48 hours; he curetted the uterus and the patient did perfectly well.—Mr. W. D. Spanton thought that it was owing to the impatience of young practitioners and the freer use of instruments that they now had to deal with lacerations of the cervix instead of fistulæ caused by undue delay. Their chief significance was in their remote results; he had several times seen hypertrophy of the lips of the cervix followed by malignant growth and was convinced that epithelioma in a considerable proportion of cases had its origin in this manner.—Mr. F. Bowreman Jessett looked upon panhysterectomy as too radical a proceeding; he had had good results from supravaginal amputation. Laceration certainly preceded epithelioma in a considerable number of cases.—Dr. T. A. Helme (Manchester) was convinced that apart from hæmorrhage, primary or secondary, and from sepsis, mere laceration was unimportant.—Mr. Skene Keith advocated operation for the repair of the cervix, but insisted upon the necessity of removing every atom of cicatricial tissue. It was difficult to decide whether epithelioma was a direct sequel to laceration, but he had never seen it affect a virgin uterus.—Dr. H. Macnaughton Jones concurred in Professor Taylor's views of the serious nature of the sequelæ of deep lacerations and dwelt especially upon their influence upon conception or if such took place upon pregnancy and labour. He thought every woman should be systematically examined after childbirth with a view to the repair of any serious laceration of the cervix.—Dr. J. A. Mansell Moullin said that though laceration in itself was not of much importance it had important complications such as inflammation of the adnexa. Ectropion, of course, called for treatment. Of hæmorrhage he had no personal experience.—The President said that the discussion showed that quite independently of their immediate effects all lacerations of the cervix should be watched and in each case treated according to circumstances; he mentioned that for some cases for which Emmet's operation was hardly necessary the actual cautery or, still better, the application of potassa fusa gave excellent results.—Professor Taylor briefly replied, explaining that he had not dwelt upon the immediate results as they were not so directly in the province of gynæcology as the later ones. He quite recognised the danger of hæmorrhage and that it was primary or secondary sepsis that gave rise to most of the evil results of laceration and also that in operating all cicatricial tissue should be removed.

ERRATUM.—In our report of the combined meeting of the Glasgow and Edinburgh Obstetrical Societies, which appeared in THE LANCET of July 4th, p. 30, Dr. J. Haig Ferguson is reported to have said that "he always removed the uterus, even if not diseased, when both ovaries had been removed." This is not Dr. Ferguson's practice and he considers that such a procedure would add greatly to the risks of a simple ovariotomy. He merely asked Dr. Howard A. Kelly if he (Dr. Kelly) advocated such a procedure as his remarks seemed to Dr. Ferguson to indicate.

Reviews and Notices of Books.

Clinical Obstetrics. By ROBERT JARDINE, M.D. Edin., Senior Physician to the Glasgow Maternity Hospital; Examiner in Midwifery to the University of Glasgow. With 47 Illustrations. London: Rebman, Limited. 1903. Pp. 657. Price 15*s.*

THIS book is written mainly from the clinical point of view and is based upon Dr. Jardine's very large experience at the Glasgow Maternity Hospital during the past 11 years. The frequency of cases of contracted pelvis met with in Glasgow is well above the average and the author has therefore had an unusual amount of experience of difficult and complicated cases of this kind in labour. In treating cases of flattened pelvis he prefers axis-traction forceps to version in the majority of cases, and in no instance would he employ version after failure to deliver with the forceps. Dr. Jardine has performed symphysiotomy four times, all the mothers making a good recovery and one of the children dying. One of the patients was delivered two years later of a child weighing eight pounds with forceps in the Walcher position. The range of this operation and that of the induction of premature labour are considered to be about the same, although the latter is to be preferred if the patient is not at full term at the time when she is seen. All the four patients operated upon could walk quite well when they left the hospital.

Dr. Jardine has written so much upon eclampsia that we turn with interest to the chapter in his book upon this subject. The cause of eclampsia is considered to be a toxin, some chemical substance the result of tissue metabolism in connexion with the development and nourishing of the fœtus in utero. The statement that nephritis in a pregnant woman is almost sure to end in eclamptic convulsions is somewhat too sweeping since it is well known that the danger of puerperal convulsions occurring in chronic kidney disease is very small indeed. The treatment followed by the author consists in free purgation, getting the skin to act, the subcutaneous infusion of saline fluid containing one drachm of acetate of sodium to the pint, the administration of chloroform with bromide and chloral, and the avoidance of morphia. Of 80 consecutive cases treated in the Glasgow Maternity Hospital 30 were fatal, or a mortality of 37·5 per cent. Of the cases treated by saline infusion only 24 per cent. were lost. The author recommends that the uterus should not be interfered with unless the fits cannot be controlled, in which case he advocates *accouchement forcé*.

In cases of external accidental hæmorrhage the treatment recommended is to turn and to deliver. The Dublin method of plugging the vagina with the membranes unruptured is not approved of and in bad cases of concealed accidental hæmorrhage the author would perform Porro's operation or *accouchement forcé*, the former by choice if the patient were in a hospital. No less than three of Champetier de Ribes's bags have burst in Dr. Jardine's practice. It is of the utmost importance that *rubber* bags of this kind should never be used and that the exact amount of fluid which the bag can contain should be pumped into it and no more. The silk bags used can be sterilised by boiling or by steam.

There are many other points of interest in the book and one of its best features is the large number of illustrative cases which are quoted. A very good appendix is added giving the statistics of the Glasgow Maternity Hospital, divided into three decades for purposes of comparison, of the 30 years from 1869 to 1898 inclusive. The fall in the death-rate from septicæmia amongst the out-patients is very marked, from 1 in 475 in the first decade to 1 in 1440 in the last decade. Another striking point brought out is that the total death-rate amongst the single is almost double

that amongst the married—viz., 1 in 83 to 1 in 150. There are many other important facts in these tables which we must leave our readers to study for themselves. The book is a useful *résumé* of Dr. Jardine's practice and will be helpful both to students and to practitioners.

Diseases of the Heart and Arterial System. Designed to be a Practical Presentation of the Subject for the use of Students and Practitioners in Medicine. By ROBERT H. BABCOCK, A.M., M.D. London and New York: D. Appleton and Company. 1903. Pp. iv. + 853. Price 25*s.* net.

THE author in his preface to this admirable book tells us that he has omitted, or given but scanty consideration to, theories but has devoted his attention chiefly to supplying a work that would be of practical value to the practitioner. The symptomatology and physical signs are considered separately, while especial attention has been paid to treatment. The author modestly lays no claim to originality but we can assure our readers that this work is no mere compilation and will well repay perusal. It opens with a discussion of the anatomy and physiology of the heart, containing an account of the different murmurs, amongst which the nature of the functional murmurs is fully set forth. Next the diseases of the pericardium are entered into and in speaking of the diagnosis of dry pericarditis we notice that Dr. Babcock draws attention to two cases which were so diagnosed but which proved after death to be cases of aortic aneurysm. In one case the only abnormal sign was a faint "scratching" sound in the region of the great vessels not synchronous with either heart sound; in the other case there was a to-and-fro rub with no dulness or pressure symptoms. In the treatment of pericardial effusion Dr. Babcock is strongly of opinion that an attempt should be made to carry off the fluid by diuretics and cathartics, especially instancing infusion of digitalis. Should, however, the effusion persist or take place very rapidly, overpowering the heart, then paracentesis is to be performed.

The various forms of endocarditis are well detailed and especially the malignant variety; in fact, we know of no superior description of the latter disease. Dr. Babcock, in the diagnosis of this variety, rightly draws attention to the significance of changes of rhythm in a bruit. Its treatment is most fully entered into. With regard to the prevention of endocarditis in acute rheumatism we fail to find any mention of Dr. R. Caton's plan by repeated blisters and iodide.

With regard to the remedial measures for chronic valvular disease Dr. Babcock, in speaking of Oertel's plan, considers that it is dangerous where the valves are affected but that it is particularly suited to cases of myocardial weakness. The treatment by resistance exercises is most fully detailed and the injunctions laid down are portrayed by well-executed plates. Dr. Babcock does not advise these exercises for patients in whom there is complete absence of compensation, differing thus from Schott and Bezly Thorne. The Nauheim treatment is well discussed and the practitioner desiring information on this point will find no detail missed. Where compensation is lost Dr. Babcock considers digitalis to be the remedy *par excellence* and relies with experience more and more upon it. But he wisely insists on not giving the drug in cases where over-dilatation has rendered the heart incapable of responding to it. The physician must first relieve the stasis and then give the remedy. For the removal of dropsy he has found digitalis to be more efficacious than any other remedy excepting diuretin. The digitalis should be given as an infusion made from English, not German, leaves. A fluid extract is not to be given. If this does not act then surgical means must be employed.

The chapter on Aneurysm is excellent but space forbids us to enter into a discussion of it. Taken altogether, we think that the book forms one of the best guides on the subject of heart disease in the English language.

Elementary Ophthalmic Optics. By A. FREELAND FERGUS, M.D. Glasg. London: Blackie and Son. 1903. Pp. 106. Price 3*s.* 6*d.* net.

A BOOK under this title was published more than a year ago by another author and we must say we fail to see why this volume should be especially designed for ophthalmic students. There is no description of the eye as an optical instrument, and the somewhat involved and obscure account of the cardinal points relating to an optical system deals only with the cardinal points of thick biconvex and thick biconcave lenses. A knowledge of the position of the cardinal points of the eye is required almost daily, and the student should at any rate be shown how simply calculations can be made by the use of "Donders' reduced eye." No mention is made of these points or of the magnification of the fundus by the direct or indirect method with the ophthalmoscope; there is no account of retinoscopy or of the theory of the correction of ametropia, nor are we told how to estimate differences of level in the fundus with the ophthalmoscope. How else can an accurate opinion be formed of the result of treatment for an optic neuritis? If the disc is only distinctly seen with a +3 D. lens in addition to that with which we are able to see the rest of the fundus, the disc must be swollen nearly one millimetre (0·963 millimetre accurately) above the retina. The proof that each dioptre corresponds to a difference of level of 0·321 millimetre is exceedingly simple and could have been easily given in four or five lines in addition to those on page 69. The work cannot be regarded as a trustworthy guide to optics however elementary, for the confusion of algebraic signs signifying direction is appalling. Distances are considered positive, which are now measured from the refracting surface, now towards it, so that it is only with expert juggling that a correct formula is sometimes attained.

LIBRARY TABLE.

The Dental Annual, 1903: A Year-book of Dental Surgery. London: Baillière, Tindall, and Cox. 1903. Pp. 190. Price 7*s.* 6*d.* net.—The publication of the Dental Annual was, we understand, looked forward to with some interest by dental practitioners with the hope that it would fill a long-felt want by collecting and annotating in a concise manner the scientific matter of each year. The first publication falls far short of anticipation and in some respects even calls for strong condemnation. Trade and purely scientific matters are incorporated together; while we look in vain for epitomes of the most important papers of the year we find subjects of comparatively little scientific value treated at length. For example, Mr. Kenneth Goadby's paper on the Bacteria found in Pyorrhœa Alveolaris is only just mentioned, while "Platinica," a secret trade preparation, receives nearly a whole page and in brackets at the end of the article we read "See Index to Advertisements." Again, the book is interleaved with advertisements, a most undesirable feature in a publication with any pretence to scientific aims. Dental surgery as a profession will not, we imagine, be proud of this production.

Studies from the Institute for Medical Research, Federated States, Malay. Vol. II., No. 1. An Inquiry into the Etiology and Pathology of Beri-beri. By HAMILTON WRIGHT, M.B., Director of the Institute for Medical Research, Federated Malay States. London: J. and A. Churchill. May, 1902. Price 3*s.*—All who are interested in the subject of beri-beri should study this interesting report in which the various alleged factors in the etiology of the disease are exhaustively considered. Dr. Wright classifies the cases into (1) acute pernicious beri-beri which is always fatal; (2) acute

beri-beri running a course of from three to six weeks, leaving the patient paralysed; and (3) beri-beri residual paralysis which persists after the specific virus has ceased to act. He finds the incubation period not a long one as set forth by Pekelharing and Winkler, but with a duration of from ten to 15 days. With regard to the various etiological factors that have been laid down the arsenical is disproved by a series of cases occurring in a gaol where no arsenic could have entered. As regards the racial incidence Europeans, Eurasians, Malays, and Tamils are but little affected, the Chinese in the Malay Peninsula almost exclusively contracting the disease. Respecting sex, females were found to contract beri-beri, according to the degree in which they lived, under similar conditions to males, whilst the second and third decades of age were the most susceptible. As to locality, the tin mines, gaols, and asylums were always found to be scourged by it. It is a disease of the lowlands and, finally, the more the population is removed from the centres of civilisation the less is beri-beri seen in it. Dr. Wright's theory of the disease is that it is a "place" disease. He narrates a striking instance in connexion with the Kuala Lumpor gaols. No case had occurred for a long time in the old gaol, whereas after a new gaol had been built a high mortality occurred in it. The prisoners affected were then transferred to the old gaol. Immediately the mortality began to fall from 30 per cent. in September to 4·25 per cent. in December. We note that he does not believe in any theory of causation by diet, but formerly in the Japanese navy the disease raged. In 1884 an improved dietary was instituted, the previous diet being exclusively of rice. In a short time the mortality sank to only 6 per 1000, instead of the amount of sickness being 40 per cent.

Text-book of Pharmacology. By ARTHUR R. CUSHNY, M.A., M.D. Aberd. Third edition. London: Rebman, Limited. 1903. Pp. 756. Price 17*s.* 6*d.* net.—We reviewed the second edition of this book in THE LANCET of July 6th, 1901, p. 28, and we have but little to add to what we then said. This, the third edition, has been brought up to date by incorporating the latest researches upon the food value of alcohol, by giving an account of the subarachnoid method of medication, and by an account of the latest results obtained by the administration of suprarenal preparations. In the chapter upon alcohol we think that more stress might have been laid upon the fact that the therapeutic value of old and genuine brandy depends not so much upon its alcohol as upon the vinous others therein contained. At p. 403 Dr. Cushny says concerning carbolic acid: "Its use as a remedy in constitutional diseases is entirely obsolete." We think that this is a somewhat sweeping statement, for of late years carbolic acid has been given, well diluted, in large doses with great success both in cases of plague and of influenza and we would refer Dr. Cushny to the issues of THE LANCET of April 8th and Dec. 9th, 1899. We do not know that anything has occurred since the date of the papers in question to minimise the value of the observations therein published. Taken as a whole, however, we consider that Dr. Cushny's work is a valuable one.

The Nurse in Hot Climates. Revised and reprinted from *The Hospital.* By EDWARD HENDERSON, M.D., F.R.C.S. Edin. London: The Scientific Press, Limited. 1903. Pp. 47. Price 1*s.* net.—This is a useful little book and contains instruction upon many points which every dweller in the East may profitably lay to heart, be he or she a nurse or not. It will appear to some readers that Dr. Henderson expects the nurse to perform duties which more properly belong to the medical man; but a medical man is not always available in the East and such complaints as sunstroke, heat apoplexy, and cholera have to be treated at once—or never. Therefore it is well that a nurse should know what may be done.

Wheeler's Medicine and Therapeutics. Second edition, revised and enlarged by W. R. JACK, M.D. Glasg. Edinburgh: E. and S. Livingstone. 1903. Pp. 432. Price 8*s.* net.—We reviewed the first edition of this work in THE LANCET of May 26th, 1894, p. 1307, and can reiterate the favourable account of it which we then gave. Dr. Jack has, while striving to keep as closely as possible to the original plan of the book, been compelled materially to modify the original arrangement and to make such additions as were necessitated by the increase in knowledge which has taken place during the last nine years. The book is excellent of its kind and should be found a valuable "refresher" both to the student and to the practitioner. One omission we may note and that is that no mention is made of the transitory attacks of aphasia which are so common in old persons and which are due to anæmia. As the subjects of these attacks are often anæmic from chronic nephritis the aphasia is likely to be set down to some cerebral mischief, thus giving rise to needless alarm.

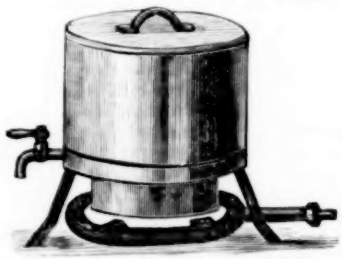
JOURNALS AND MAGAZINES.

The Ophthalmoscope for July, 1903.—We have received the first number of a new monthly review of ophthalmology edited by Mr. Sydney Stephenson with Mr. C. Devereux Marshall as sub-editor. The object of our new contemporary is to provide information with regard to all ophthalmological topics in relation to general medicine and surgery. This relationship those responsible for the journal regard as vital, being convinced that future advances in ophthalmology will be closely bound up with progress in the wider departments of general work. With this view we are wholly in accord and if the abstracts of current ophthalmological literature which we are bidden to expect in the *Ophthalmoscope* are carefully done—and we understand that they will be contributed by competent writers—British ophthalmic surgeons should be familiarised with the work and literature of their colleagues all over the world. The clinical, pathological, and therapeutical memoranda in the first number of the *Ophthalmoscope* are distinctly interesting.

New Inventions.

THE PYRO-KETTLE.

THIS is an ingenious contrivance which will no doubt be found useful when a supply of very hot water is required at the shortest possible notice, as so often happens in the sick-room, operating theatre, and elsewhere. When an ordinary kettle or other metallic vessel containing water is heated from below in the usual way the heat is, of course, communicated first to the lowest portion of the liquid; it very



soon, however, spreads throughout the entire mass, partly by conduction, but chiefly by convection or the production of currents. One consequence of this is that the whole of the water must be made to boil before any boiling water can be drawn off. With the pyro-kettle this is not so, for the lowest portion of its contents is always the hottest and may even be

at the boiling point while the surface is little more than lukewarm. The features of this kettle are (1) that the water in making its way to the tap passes through the hot zone where it is exposed to the full effect of the source of heat; and (2) that cold water may be added slowly at the top without lowering the temperature of the hot water which is being drawn off at the time. The prompt supply obtainable in this way is for many purposes a great advantage. The kettles are of a cylindrical shape with a flat lid, as shown in the illustration, and present no difficulties or complications in their management. Half-gallon, one-gallon, and two-gallon sizes are made for domestic use, to be heated over gas jets, oil stoves, open fires, or kitchen ranges. The half-gallon size is five inches high and seven and a half inches in diameter; the prices are 2*s.* 9*d.* in tinned steel plate and 5*s.* 6*d.* in copper. Larger sizes for supplying baths and for other purposes are also to be obtained. The manufacturers are the Boiler Heater Co., 46, Queen Victoria-street, London, E.C.

AN IMPROVED TARSAL CYST FORCEPS.

Messrs. Weiss and Son have made for me an eyelid clamp for use in operating on tarsal cysts which, I venture to think, is an improvement on any other and from an extended trial I am satisfied as to its handiness and usefulness. Fig. 1 gives a general idea of its size and construction. The blades are detachable and the instrument can be obtained with the

FIG. 1.

FIG. 2.

opening in the female blade either nine millimetres or six millimetres in diameter. For hospital use I would advise the former. Fig. 2 shows the space between the blades when they are clamped as closely as possible, which admits of the eyelid being firmly held without being unduly pressed and bruised.

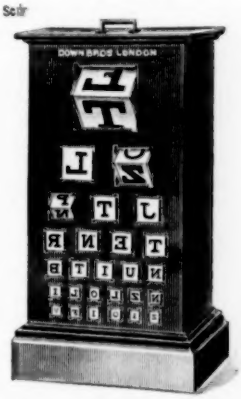
JOHN R. ROLSTON,
Surgeon, Royal Eye Infirmary, Plymouth; Ophthalmic Surgeon, Royal Albert Hospital, Devonport.

Plymouth.

"COMBINATIONS" TEST TYPE.

THESE are to be used with a mirror at three metres. The cabinet is placed on a low table and the patient stands immediately behind with the test glasses between him and the cabinet. If he complains of inability to read small type but sees well in the distance the examiner puts his finger on a letter of $\frac{6}{9}$ and whilst the patient looks in the mirror he simply asks, "What is this?" and turns the cube to test the patient's accuracy. If near and distant vision are defective the examiner puts a finger on $\frac{6}{12}$. If the patient complains that he cannot see in the distance but can see to read well the finger is placed on $\frac{6}{9}$. We have used them at the Croydon Hospital for 12 months and find that they save from 40 to 60 per cent. of the words used in examination and at least from 60 to 70 per cent. of the time. We have used the rotatory box before these but now it is never used. Unquestionably the new test type saves time and energy

Scale



and is a great aid to accuracy when dealing with unreliable patients, such as children and senile patients. Moreover, the examiner can show four letters in $\frac{6}{9}$, 16 combinations in $\frac{6}{12}$, 64 in $\frac{6}{18}$, 256 in $\frac{6}{24}$, 1024 in $\frac{6}{36}$, 2048 in $\frac{6}{48}$, and so on, the type therefore being unlearnable.

Messrs. Down Bros., Limited, St. Thomas's-street, Borough, London, are the makers.

Croydon. CHARLES WRAY, F.R.C.S. Eng.

ST. BARTHOLOMEW'S HOSPITAL AND MEDICAL SCHOOL.—Sir William S. Church, President of the Royal College of Physicians of London, distributed the prizes on July 15th to the students at St. Bartholomew's Hospital Medical School in the great hall of the hospital. Sir Trevor Lawrence, treasurer of the hospital, presided and there was a large attendance.—Mr. W. D. Harmer (the Warden), in his report on the work of the school during the past year, said that its prosperity had been fully maintained. The number of students who entered was 129, as against 140 in the previous year, and the total number of students who had been working at the hospital was 573. St. Bartholomew's Hospital still headed the list among the metropolitan schools in regard to the number of students who entered for the full course. Various changes had taken place in the hospital staff, among them being the retirement of Sir William Church from the active staff, of which he had been a member for 35 years, and his appointment as consulting physician. Sir Trevor Lawrence then addressed the gathering and said that it was necessary to have a thoroughly and well-equipped medical school in connexion with a great general hospital. It was desirable to urge this inter-connexion between hospital and school because it never seemed to meet with adequate recognition at the hands of the general public who believed that the teaching staff of such schools obtained large pecuniary advantages from them.—Sir William Church then distributed the prizes and among the chief awards were the following: the Kirkes scholarship and gold medal to Mr. C. M. H. Howell; the Brackenbury surgical scholarship to Mr. F. J. Faulder; the Brackenbury medical scholarship to Mr. C. H. Howell; and the Lawrence scholarship and gold medal to Mr. A. A. Meaden. In the course of a short address Sir William Church said that the interest of their work repaid the students for their exertions and the increase of their knowledge on the causation of disease was an incentive to work. In medicine as distinct from surgery the progress had not been so striking to the public but the advance had really been more remarkable. The complexity of medicine now rendered it impossible for any man to be equally familiar with every branch of medical science and this necessitated the existence of specialists. Votes of thanks to Sir William Church and the chairman closed the proceedings.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE extraordinary session of the General Medical Council resumed its sitting on Thursday, July 16th, when the proceedings were brought to a close.

WEDNESDAY, JULY 15TH.

The Council, with Sir WILLIAM TURNER, the President, in the chair, towards the close of the first day's sitting of the special session held to consider, among other matters, the relations between it and the English Royal Colleges respecting examination in the primary subjects of the medical course, proceeded with the following notice of motion by Sir Victor Horsley, seconded by Sir William Thomson:—

That inasmuch as:—(*a*) The examination in chemistry, physics, and biology of the Examining Board in England is, in the opinion of the General Medical Council, insufficient; (*b*) the synopses and requirements of the Examining Board in England for its examination in chemistry, physics, and biology, are, in the opinion of the General Medical Council, insufficient; (*c*) the courses of study in chemistry, physics, and biology in the majority of the teaching institutions recognised by the Examining Board in England, but not approved by the Council, are, in the opinion of the General Medical Council, insufficient;

The Council do represent to His Majesty's most Honourable Privy Council that the courses of study and examination to be gone through, in order to obtain qualifications for registration from the Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England, are not such as to secure the possession by persons obtaining such qualification of the requisite knowledge and skill for the efficient practice of their profession.

The PRESIDENT suggested that (*a*), (*b*), and (*c*) should be dealt with separately, and when they came to the final part there would be opportunity of proposing something else.

Sir VICTOR HORSLEY moved (*a*). He regretted the absence of his seconder, Sir William Thomson, but remarked that, as Dr. McVail had very properly pointed out, this question in regard to the teaching institutions had already been answered—had been answered in the affirmative, and he now asked the Council to complete the answer by declaring that the examination itself was insufficient. The General Medical Council had appointed visitors to inspect the examination in question. These visitors had reported and in accordance with precedent the report had been sent to the licensing bodies concerned for their comments. These comments ought to have been before the General Medical Council at this meeting, but they were not; they had comments from only one of the two. And why had they not comments from the two which were said to be conjoint? The reason was that the attitude of these bodies towards one another and towards the General Medical Council was not the same. Dr. Norman Moore said that they worked together but that was not the case. As regards the Royal College of Physicians, it not furnishing comments was an unintentional discourtesy towards the General Medical Council, for if they looked at dates they would see that the Royal College in question had taken practically six months to consider this matter. But, besides, they knew that the Royal College of Surgeons, having determined that the examination was the best that could be devised, asked the Royal College of Physicians to confirm its view. But it did not. Therefore to say that the two Colleges worked together was saying something which was not the fact. In the circumstances they must consequently disregard the Royal College of Physicians and deal only with what they had before them—namely, the comments of the Royal College of Surgeons. He believed that the Royal College of Physicians was desirous of considering this matter in a fair way; he was sorry to say that it was not the case with his own College (the Royal College of Surgeons). Was the examination of the Conjoint Board adequate? They had it stated in the report of the visitors that the examination was wholly insufficient. The concluding remarks, signed by Sir Henry G. Howse, the late President of the Royal College of Surgeons, focussed the whole thing. Speaking for the Council, Sir Henry Howse said:—

We are of opinion that the visitor and inspector are in error in supposing that the examination is not sufficient for the purpose for which it is intended. This purpose is the testing of such knowledge of chemistry, physics, and biology as a student may acquire in proper laboratories and under sound teachers in the first year of his medical studies.

"For the purpose for which it is intended" had nothing to do with the matter. All the Council had to do was to put forward its opinion, and all he asked was that it should support its visitor and inspector.

Dr. BRUCE seconded the motion which was carried unanimously.

On the suggestion of Dr. MACKAY, supported by Dr. MCVAIL, paragraph (*b*) was withdrawn as superfluous.

Sir VICTOR HORSLEY moved paragraph (*c*).

Dr. BRUCE seconded the proposition.

Dr. NORMAN MOORE cautioned the Council against doing great injustice by adopting this paragraph which, he said, referred only to institutions which the Royal Colleges had after visitation recognised as teaching institutions. The candidates received from these were, in amount and comparatively, microscopical.

Dr. MACALISTER said that if Dr. Norman Moore could tell the Council the numbers that had come from the institutions embraced in paragraph (*c*) he thought that they would have before them the crucial figures required in this discussion, for he had always maintained that the Conjoint Board was in this matter simply fighting a shadow. The number of candidates coming from the institutions in question was, in his opinion, so small that it ought not to form an obstacle to the Council arriving at a proper understanding in the matter.

Sir VICTOR HORSLEY: I myself have no doubt that the number is small.

Dr. NORMAN MOORE: You should not, then, cast a slur upon us by condemning the whole body.

Dr. MCVAIL: If the number of candidates is so microscopical it is a pity that we should have been fighting over the matter for ten years. It is quite delightful to have Dr. Norman Moore taking that view now—only now.

Dr. ATTHILL quite agreed that the General Medical Council had been trying to fight a shadow. He was entirely in favour of revision, but he considered that it must be decided first whether the English Royal Colleges were to maintain their legal rights or whether the Council was to go to the supreme tribunal to determine its powers.

After more discussion the words "the majority" were substituted by "many," and the words "which have been" were inserted before "recognised." The paragraph then read:—

(*c*) The courses of study in chemistry, physics, and biology in many of the teaching institutions which have been recognised by the Examining Board in England, but not approved by the Council, are, in the opinion of the General Medical Council, insufficient.

This was adopted by 20 votes to two.

Sir VICTOR HORSLEY rose to propose the last part of his motion but he doubted if it should be proceeded with at so late a period of the sitting.

Dr. MACKAY was willing to second the proposition.

The PRESIDENT mentioned that there had been put into his hands this amendment—moved by Dr. Windle and seconded by Sir Christopher Nixon:—

That a committee be appointed to confer with the representatives of all the licensing corporations with the view of ascertaining whether some agreement can be arrived at as to the following matters in connexion with the first year of medical study—viz: (*a*) the subjects in which instruction should be given; (*b*) the places in which instruction may be received; (*c*) the examinations which should be held and the standard thereof; and (*d*) whether any of the subjects now included in that year might be made subjects of the preliminary examination.

Dr. MCVAIL: Put that on the programme for to-morrow so as to give Dr. Norman Moore and Mr. Bryant an opportunity of putting a further statement or views before the Council. We have come to the crucial point: I think we should not go further to-night.

Dr. NORMAN MOORE: It is quite obvious that neither Mr. Bryant nor myself can express to the Council any absolute pledge as to the bodies we represent. The only kind of pledge I can give is a pledge to bring the matter before my College and to endeavour to get it to adopt the course the Council wishes.

Mr. BRYANT: My position is parallel.

Further discussion was postponed and the Council adjourned.

THURSDAY, JULY 16TH.

The Council resumed to-day, Sir WILLIAM TURNER, the President, being in the chair.

After the confirmation of the minutes of Wednesday's proceedings the Council as a whole went again into committee

for, the PRESIDENT explained, the further consideration of the subject before them, and the first item on the programme of business, he said, was the adjourned consideration of the motion by Sir Victor Horsley, seconded by Dr. Mackay.

Proposed Representation to the Privy Council.

The motion was as follows:—

That the Council do represent to His Majesty's most honourable Privy Council that the courses of study and examination in chemistry, physics, and biology to be gone through, in order to obtain qualifications for registration from the Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England, are not such as to secure the possession by persons obtaining such qualification of the requisite knowledge and skill for the efficient practice of their profession.

Sir VICTOR HORSLEY said that since he moved this motion on the previous day members of the Council had been discussing matters informally and certain alternative proposals had been put upon the programme of business. He had considered these alternative proposals and he thought that he might put the matter now in a more favourable position than he did on Wednesday. The first of the proposals was an amendment to his motion by Dr. Windle. That amendment, however, embodied two propositions, and although he held the view that it was not really a competent amendment to his motion he wished to add that it was not in order at this Council to present two distinct propositions and to take only one vote upon the whole. Then there was the notice by Dr. MacAlister. This consisted of two paragraphs. The first of these provided that the President should communicate to the English Royal Colleges the resolutions of the Council expressing its deliberate judgment on the reports by the Education and Examination Committees in respect to the teaching institutions recognised by the Colleges and the courses of study and examination in the primary subjects which they accepted for qualification for their degrees. If that amendment had been submitted before his motion he should have been very glad to vote for it, on the understanding, however, that he simply held over his own motion until the November session. His reason was this—the Council should in its own interests come to a decision on this matter in a constitutional way as early as possible. He thought that could be done only through the Privy Council, but the General Medical Council had not, he thought, communicated to the Royal Colleges that the General Medical Council considered their examinations insufficient and it would be only proper that they should inform them and give them a few months to make statements on that intimation if made and if they thought fit. When the Council met in November he should propose his motion.

The PRESIDENT: I do not think you should formally commit yourself.

Sir VICTOR HORSLEY: I am much obliged to you. I am quite willing to withdraw my motion until November on the understanding that the first paragraph of Dr. MacAlister's amendment is adopted.

The notices referred to by Sir Victor Horsley were:—

Notice of amendment by Dr. Windle, seconded by Sir Christopher Nixon:—

That in view of the conclusions arrived at in Resolutions 8 and 11 of the minutes of Wednesday and before proceeding further in relation thereto, a committee be appointed to confer with representatives of all the licensing corporations with the view of ascertaining whether some agreement can be arrived at as to the following matters in connexion with the first year of medical study: (*a*) the subjects in which instruction should be given; (*b*) the places at which instruction may be received; (*c*) the examination which should be held and the standard thereof; and (*d*) whether any of the subjects now included in that year might with advantage be made subjects of the preliminary examination.

Notice of amendment by Dr. MacAlister:—

1. That the President be requested to forward to the Royal College of Physicians of London and the Royal College of Surgeons of England copies of the reports of the Education Committee and of the Examination Committee now adopted, together with the resolutions expressing the deliberate judgment of the Council thereupon.
2. That the President be further requested to call the serious attention of the Royal Colleges to the unsatisfactory state of matters in regard to the course of study and examinations in chemistry, physics, and biology which these reports disclose, and to urge that in the interest of medical education immediate steps should be taken to remedy the defects in the regulations of the Royal Colleges which have led thereto.

Dr. MACALISTER was very glad to hear that Sir Victor Horsley realised that there was still a step to be taken before the General Medical Council went to the Privy Council on the matter in question. The General Medical Council had passed two very important resolutions—one declaring that the examination of the English Conjoint Board in the primary subjects of the medical curriculum was insufficient and the other that the courses of study in the primary subjects in many of the teaching institutions recognised by the English Conjoint Board were insufficient. These resolutions had not been before the Royal Colleges at all. If, then, the General Medical Council went—he should say prematurely—to the Privy Council and reported its decisions the first thing the Privy Council would do would be to ask if the resolutions had been communicated to the bodies concerned. The General Medical Council would be in a false position if it had not done so. As a Fellow of the Royal College of Physicians of London he claimed the right to have the facts put before him at or by the College. He thought these facts must come as a surprise to many of the Fellows of the Royal College of Physicians. It was not only fair, but it was almost a statutory necessity, that they should give not only the Royal College of Physicians but also the Royal College of Surgeons an opportunity of discussing the matter. No doubt some of the Fellows would feel that the thing had now been reduced to such small proportions that the Royal College of Physicians must think it ridiculous on its part to strive to continue the absurdity, for owing in some degree to the dispute of the last ten years they had not improved the education given in the scientific schools. In view of the very guarded and respectful answer of the Royal College of Physicians to the inspectors' report—viz., that it would carefully consider it—he thought that the Royal College of Physicians at least might be fairly expected to give its consideration to important facts put before it for the first time and he should be surprised if that consideration did not result in the benefit of medical education, the profession, and the public. He moved the acceptance of the first paragraph of his proposal.

The PRESIDENT suggested that it might be advantageous if consent could be obtained to a combination of Dr. Windle's and Dr. MacAlister's proposals.

Dr. WINDLE was willing and he thought his seconder, Sir C. Nixon, would also be willing to accept Dr. MacAlister's two propositions.

The PRESIDENT: That would leave you entirely free to move for the appointment of a committee.

Sir VICTOR HORSLEY: If Dr. Windle withdraws his proposal as it stands on the paper I would ask Dr. Mackay whether we should not withdraw our motion in order to have the first part of Dr. MacAlister's notice passed.

Dr. MACKAY thought that it was the absolutely logical conclusion to proceed with the motion after the resolutions that had been passed on Wednesday. He should, however, be very willing indeed that the motion should stand over until the last and, if necessary, until the November session. But they should show the Privy Council that the General Medical Council delayed matters in the hope that something might arise by which this unfortunate dispute with the Royal Colleges might finally be brought to an end.

The PRESIDENT: You will ask leave, Dr. Windle, to modify your proposal. Then you, Sir Victor, will postpone your motion.

Sir VICTOR HORSLEY: Yes.

The necessary leave to modify was given to Dr. Windle.

Dr. NORMAN MOORE did not know whether he would now be in order in saying anything about Sir Victor Horsley's motion.

Sir VICTOR HORSLEY: The motion is postponed.

The PRESIDENT: I must ask the Council about that.

Dr. NORMAN MOORE only wished to point out this to the Council. They were all trying with their utmost to put an end to a state of things which they regretted. They all had their own views as to how it had arisen. He did not think the Royal Colleges had any share at all in causing it, but that was a matter of opinion no doubt. Yet it added to the difficulties of discussing the subject to have a sort of minatory clause held above them. The Council would not part with any of its statutory powers by not having the particular clause or motion on its paper, but it was quite clear that no one could fairly discuss a subject when a threat was held over him.

Sir VICTOR HORSLEY said that he had not asked for the postponement of his motion in order to get a bargain of such a sort. He had asked for postponement on the ground that the Royal Colleges had not received any intimation of the General Medical Council's decision. On that ground he had asked to postpone his motion until November.

Dr. NORMAN MOORE maintained that Sir Victor Horsley's explanation did not affect in the least what he had been saying, for he thought that as the motion had been published in the press and had been discussed by the General Medical

Council in public it ought now to be carried, rejected, or for the time entirely withdrawn—the withdrawal not committing Sir Victor Horsley to any principle. As to what Dr. MacAlister had said, he only wished that gentleman would always attend at the Royal College of Physicians and give them the advantage of the clear intellect and the powers of speech which he displayed at the meetings of the General Medical Council, and if he did so attend he would see that it was the duty of the representative of the College at this Council to report everything in writing to the College. He certainly should communicate to the College these reports of the Education and Examination Committees.

The PRESIDENT: Not officially.

Dr. NORMAN MOORE: It is my duty to inform them officially.

The PRESIDENT: No, it is the duty of this Council.

Dr. NORMAN MOORE: I only wish that a formal vote should be taken in one direction or another on Sir Victor Horsley's motion or that he should say that he withdraws it in the interests of the transaction of business.

Dr. BRUCE: I do not see any particular reason why we should not now dispose of Sir Victor Horsley's motion.

Sir VICTOR HORSLEY: I ask leave to withdraw the motion until November.

Dr. MCVAIL: If Dr. MacAlister's motion is put, and if I vote for it, I am not to be taken as excluding myself from voting at some future time for Sir Victor Horsley's proposal.

Dr. PYE-SMITH insisted upon the withdrawal of Sir Victor Horsley's motion as such withdrawal would leave the Council free to discuss Dr. Windle's proposal.

The PRESIDENT put the question that leave be given to Sir Victor Horsley to postpone his motion until November.

Dr. MACALISTER wished to speak against that. If leave were given to postpone that became an act of the Council. He suggested that the motion and amendment should be put, and if the amendment were carried then Sir Victor Horsley's motion would be lost.

Sir VICTOR HORSLEY: If there is to be a false issue I ask leave to withdraw the motion.

Leave to withdraw was at once granted.

The PRESIDENT explained that that cleared the ground so far. He understood that Dr. Windle with consent would take up Dr. MacAlister's notice and would also propose a modification of his own notice. He asked Dr. Windle to propose the series in its several parts.

Dr. WINDLE then moved Dr. MacAlister's (1), viz.:—

(1) That the President be requested to forward to the Royal College of Physicians of London and the Royal College of Surgeons of England copies of the reports of the Education Committee and of the Examination Committee now adopted, together with the resolutions expressing the deliberate judgment of the Council thereupon.

Sir C. NIXON seconded the motion which was at once carried.

Dr. WINDLE next moved Dr. MacAlister's (2), viz:—

(2) That the President be further requested to call the serious attention of the Royal Colleges to the unsatisfactory state of matters in regard to the course of study and examinations in chemistry, physics, and biology which these reports disclose, and to urge that in the interest of medical education immediate steps should be taken to remedy the defects in the regulations of the Royal Colleges which have led thereto.

He thought what was proposed in this was a step which should be taken in consequence of (1).

Sir C. NIXON seconded the motion.

Dr. NORMAN MOORE: I think it is quite right that the Council should forward this resolution, but I cannot help feeling that it contains too many adjectives.

The motion was agreed to.

Dr. WINDLE then proceeded with the modification he wished to present of his own notice. He moved

That the President be authorised to appoint a committee, consisting of two members from each of the three Branch Councils, to join with him in conferring with representatives of the Royal Colleges should it appear that a conference on the questions raised thereon is desired.

He was glad that Sir Victor Horsley's motion had been withdrawn, for he did not wish to go into any conference with any menace hanging over their heads. He desired that the conference should be of a friendly character and for the improvement of medical education and the settlement of a difficulty which had been far too long before the General Medical Council. The object of this committee was, of course, to adjust differences with the Royal Colleges.

Dr. ATTHILL hoped that Dr. Windle would then proceed with his notice as in print, or the latter part of that notice, so as to give some instructions—some guidance—to the committee.

Dr. MACALISTER: Dr. Windle's original motion would be premature just now. It might be put forward when we have the Scotch and Irish reports before us.

Dr. LINDSAY STEVEN was very sorry that Dr. Windle had seen fit to substitute something else for his original motion, as he thought that that motion promised a way out of the difficulty more securely than the way contemplated by the modification he had now proposed. Dr. Windle had told them that his reason for putting forward the modification was that the Council was not in a position to confer with all the licensing bodies, but to limit the matter in the way in which he had now done did not seem to him conducive to a speedy settlement of it. He was afraid that the change of attitude simply meant this—that the work done at this special meeting of the Council would prove to have been absolutely useless and that they would have to go over the whole ground again in November.

Dr. WINDLE: The report of the Scotch inspection is not before us yet. The report of the Irish inspection was handed in, I believe, only two hours ago. Therefore the motion I originally intended to propose must necessarily have led to greater delay.

Sir C. NIXON regarded Dr. Windle's modified proposal as a step in the right direction.

On a vote Dr. Windle's motion obtained the support of 22 members and accordingly it was declared to have been carried.

Sir VICTOR HORSLEY moved that the committee should be requested to report to the November session of the Council. This matter, he thought, was one which ought no longer to be discussed at the cost of the profession, and it would be so discussed, he imagined, unless it were settled in November.

Sir C. NIXON seconded the proposal.

Dr. MACALISTER: It is a committee of negotiations; the President will report the result.

The PRESIDENT: The motion is in rather an unusual form, as it throws a great deal of responsibility upon the President; the committee would be a President's committee. I do not know that the President is called upon to consult the Council as to who the members of the committee should be and it therefore seems to me that the President would have to report; but it is another matter how much progress can be made between this and November if we take into account the fact that two holiday months come in.

Sir VICTOR HORSLEY: We should at least have the knowledge by November whether the Royal Colleges would enter upon such negotiations.

The PRESIDENT: That, at least.

Sir VICTOR HORSLEY: I understand then that you, Sir, will report. I do not press the proposal.

The Council resumed and the resolutions adopted in committee were confirmed.

The PRESIDENT, at a later stage, said that he had selected the following members to form the committee—viz., English Branch, Dr. Windle and Mr. Young; Scottish Branch, Dr. Finlay and Dr. Bruce; and Irish Branch, Sir C. Nixon and Sir Charles Ball.

On the motion of Dr. MACALISTER it was agreed to enter on the minutes the tabulated statement on next page.

The Apothecaries' Society of London.

Mr. BRYANT read a report by the Examination Committee on the report by the visitors of the examinations in chemistry, physics, and biology of the Apothecaries' Society of London as follows:—

This examination is in many respects similar to the examination held by the English Conjoint Board in the same subjects. The latter body does not accept the Apothecaries' examination in lieu of its own. The Apothecaries' Society does accept the examination of the Conjoint Board. Certain points of difference between the two are indicated in the report of the visitor.

Biology.—There is no paper and no practical test, the examination, as at the Conjoint Board, being of a purely oral character. Conducted on the same lines as the last-mentioned examination and, as far as the visitor could judge from the two candidates who alone presented themselves for it, the examination is of a very similar standard. The visitors consider that the examination would be much improved by the addition of a paper and practical work. This committee agrees with the visitors in the recommendation to add a written and practical part to the examination in biology.

Physics.—The paper work in connexion with this subject consists of two questions on the same paper as that dealing with chemistry; of these questions one must be answered.

In this respect the examination agrees with that of the Conjoint Board, but in addition there is an oral examination, a feature which is lacking in the other case. The oral examination forms a part of that dealing with chemistry and the report shows that it is of a practical character. The practice of the Society in requiring an oral examination is commended by the visitors. They suggest that three questions should be set in the physics section of the paper, that the candidates should be required to answer at least two of these, and that no candidate should be allowed to pass in physics should he fail to secure

adequate marks in that subject, even if he should obtain 50 per cent. on the entire paper. With these recommendations the committee concurs and, in addition, desires that the subject of physics should be dealt with in a separate paper.

Chemistry.—This examination closely resembles that of the Conjoint Board, being, according to the opinion of the visitors, stronger in one respect and weaker in another. It is stronger in that every candidate is required to submit to an oral examination, a test which is only demanded from those on the line by the regulations of the Conjoint Board. On the other hand, it is reported that the practical examination does not include the preparation and exhibition of specimens of compounds. The visitors regard this as the most valuable part of the practical work demanded by the Conjoint Board. With respect to the practical examination the visitors report that the standard is too low and that "it is of a kind that is of extremely little value either as a training for the student's intellectual powers, or as a preliminary to the study of physiology, or as giving him something that would be useful to him in his future career." From what has been said it will be gathered that the visitors do not regard this examination as a sufficient test for medical students at the end of their first year in the subjects with which it deals. With this view the committee concurs. The court of examiners in its reply thanks the Council for its report and promises that it shall have careful consideration. This committee trusts that the deficiencies to which attention has now for the first time been called will not merely be noted by the court but that it will be rectified by the Society and thus bring its examination up to a sufficient standard.

The committee is in agreement with the visitors "that the average training of the candidates is insufficient for men who are commencing medical studies."

Results of the First Examination—Chemistry and Biology—of the Conjoint Examining Board of the Royal College of Physicians of London and the Royal College of Surgeons of England for the Years 1893–1902, supplied by the Board.

Students from	Year.	Chemistry. Approved.	Chemistry. Referred.	Biology. Approved.	Biology. Referred.
Medical schools ...	1893	411	292	242	102
Science institutions	1893	3	2	—	—
	1893	414	294	242	102
Medical schools ...	1894	378	307	333	170
Science institutions	1894	14	11	7	6
	1894	392	318	340	176
Medical schools ...	1895	310	188	303	138
Science institutions	1895	14	7	15	6
	1895	324	195	318	144
Medical schools ...	1896	302	177	318	120
Science institutions	1896	22	11	11	3
	1896	324	188	329	123
Medical schools ...	1897	255	150	246	146
Science institutions	1897	27	16	14	13
	1897	282	166	260	159
Medical schools ...	1898	196	165	260	93
Science institutions	1898	24	12	17	7
	1898	220	177	277	100
Medical schools ...	1899	233	172	263	94
Science institutions	1899	18	25	22	6
	1899	251	197	285	100
Medical schools ...	1900	225	172	245	86
Science institutions	1900	29	18	17	10
	1900	254	190	262	96
Medical schools ...	1901	191	134	166	81
Science institutions	1901	23	13	22	9
	1901	214	147	188	90
Medical schools ...	1902	152	92	155	65
Science institutions	1902	21	17	21	7
	1902	173	109	176	72
Totals for Ten Years.					
Medical schools ...	1893 to 1902	2653	1849	2531	1093
All science institutions	1893 to 1902	195	132	146	67
Total		2848	1981	2677	1160
Science institutions recognised by licensing body but not approved by the Conjoint Board		101	71	46	30

The Society's reply to this report was—

The court of examiners thank the General Medical Council for their report upon the primary examination in chemistry, physics, and biology, which will receive their careful consideration.

After some remarks by Sir HUGH BEEVOR the report was adopted.

Dr. MCVAIL said that there was very little difference between this report and that on the Conjoint Board in England. It was a little better in some respects, a little worse in others, but as a matter of fact it was on all fours with that on the Conjoint Board. After what had taken place, what an extraordinary position the General Medical Council would be in if it had to go to the Privy Council—he hoped it never would have to go—and if counsel acting for the Royal Colleges were to say that with regard to a report similar in character respecting the Society of Apothecaries the General Medical Council contented itself with merely calling the body's attention to it. It seemed but logical that in this instance they must take similar action to that taken with respect to the Conjoint Board. He therefore moved:—

That the examination in chemistry, physics, and biology of the Apothecaries' Society of London is, in the opinion of the General Medical Council, insufficient.

Dr. BRUCE seconded the motion.

Sir VICTOR HORSLEY asked the Council to remember that the Apothecaries' Society of London had accepted the report of the visitors and, in fact, had expressed appreciation of it, whereas the Royal College of Surgeons did not accept the visitors' report, and then there were no comments at all from the Royal College of Physicians. So the cases were not quite parallel.

Dr. MCVAIL: You do not oppose?

Sir VICTOR HORSLEY: Oh, no.

Dr. MCVAIL: The reply of the Apothecaries' Society is very much like the reply of the Royal College of Surgeons of England; the reports are so similar that we must pass a similar motion.

Dr. NORMAN MOORE could not help thinking that the Council should not go on expressing censure on a single examination. It was not a very wise thing to do.

Sir HUGH BEEVOR wished to know what more Dr. McVail wanted than the reply which the Apothecaries' Society had transmitted to the Council. It was in order that the Society might consider the situation fully that the reply sent was all the answer that could be got. It would be impossible for the Society at one meeting to put in a full answer. He begged that the Council would believe that the reply which the Society had sent was a reply which involved very careful and full consideration on its part of the Council's visitors' report and it was not possible for it to send more.

On a vote the motion was carried by 13 votes to 2.

Dr. MACALISTER then moved—

That the President be requested to forward to the Society of Apothecaries of London copies of the report of the Examination Committee, now adopted, and the resolution of the Council thereupon, and to urge upon them the importance of improving the scope and standard of education in chemistry, physics, and biology.

This motion was at once agreed to.

The University of Oxford.

The next business was the consideration of a report by the Examination Committee on the final examination for the degree of Bachelor of Medicine of the University of Oxford, the visitor being Sir Christopher Nixon and the inspector Sir George Duffey. This report was received and entered on the minutes of the ordinary session in May last.

Sir VICTOR HORSLEY: May I ask that this report be taken as read? Mr. Bryant reads all reports.

Mr. BRYANT was quite willing to take the report as read. He did not mean to say much as to what it contained but he would say that he did not approve of all that was stated in it by the committee. He had told the members of the committee that he should probably explain matters in regard to which he differed from them and they had found no fault with the suggestion, so "I came to the conclusion that this committee is ready to recognise the fact that every candidate——"

Several Members: What are you reading from?

Mr. BRYANT: I am reading from a draft report which I prepared. I stated to the committee that I would bring forward any parts of my own draft instead of what is presented to the Council.

Mr. BROWN and other members objected.

Mr. BRYANT: In these circumstances I keep the personal remarks to myself and I simply ask for the adoption of the report.

Dr. MCVAIL thought it was peculiar to have a chairman of committee moving the adoption of a report the terms of which he disapproved. Mr. Bryant had only moved formally as chairman and he quite thought that Mr. Bryant was entitled so to move and then in the course of the ensuing debate he could show reasons why the report should not be adopted.

Mr. BRYANT: I do not wish to speak again; the Council will not listen to me.

The PRESIDENT: Go on, Mr. Bryant.

Mr. BRYANT: I point out the necessity of having some scheme.

Dr. FINLAY seconded the motion for the adoption of the report.

Dr. PAYNE explained that the Examination Committee's report had been under the consideration of the University of Oxford and certain changes had been agreed to, while others were still under consideration. When these were settled the new regulations would be submitted to the Council as regulations for examinations to be held in the future.

Dr. NORMAN MOORE hoped that the Council would not adopt the report. It would be very undesirable to censure the University of Oxford in such a way. The report was not at all, in his opinion, a judicious one. It must be remembered that the University of Oxford had done much to maintain medical education, although it was not always done in accordance with the regulations of the General Medical Council.

Sir C. NIXON, the visitor, stated that after careful consideration he and Sir George Duffey were obliged to report to the Council that the Oxford University examination was insufficient. It was a great misfortune that a university like Oxford should have no fixed medical curriculum.

Dr. MACALISTER thought it was impossible for the Council to come to a definite conclusion about this report; matters of fact were in conflict. They were told that the regulations of the University of Oxford had not been carried out fully by the examiners; on the other hand, they were informed that the regulations were under revision at the present time. Consequently it was quite clear that the Council could not do any more than they could do in the case of the University of London which informed them that its future examinations would be under new regulations. He thought the Council must re-inspect the examinations of both Universities and he therefore moved as an amendment:—

That the consideration of the report of the Examination Committee be postponed and that the President be requested to arrange for a second inspection and visitation of the final examination of the University of Oxford during the ensuing year, and that the report thereon be considered by the Council before a decision is come to as to the sufficiency of the examination.

Dr. MCVAIL, who seconded this amendment, asked what would become of the report in the meantime.

The PRESIDENT replied that if the amendment were carried the report would remain on the Council's minutes.

Dr. PAYNE mentioned that the next examination at Oxford University would take place in December.

Sir VICTOR HORSLEY said that he must vote against the amendment.

On a vote, 17 members supported the amendment which thereupon was put as a substantive motion and was immediately agreed to.

The University of London.

Dr. MACALISTER, seconded by Sir CHARLES BALL, moved a similar proposal in respect to the University of London.

Dr. PYE-SMITH said that he made no comment upon this motion except this, that he accepted the proposal, and could assure the Council that the University of London would welcome any inspection to see if it could help it to improvements.

Dr. MACALISTER's motion was then agreed to.

The Council concluded this special session by dealing *in camerâ* with a report from its Office-site Committee. However, before rising till November next it, on the motion of Mr. Bryant, passed a vote of thanks to the President for his able conduct of the business which it had had to deal with.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 23, 1825.

FROM

LECTURES

ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

BY DR. ARMSTRONG.

Theatre of Anatomy, Webb Street.

Chorea.

Dr. ARMSTRONG considered chorea to originate in irritation of the mucous membrane of the stomach, or small intestines, together with a disordered condition of skin, and a consequent torpid or irregular state of the liver and colon. In the progress of the complaint, the spinal cord and brain become distended, so as to affect the motion, and at last the intellect. He spoke highly of the laxative plan recommended by Dr. HAMILTON senior, and said that he had never known it to fail, except in two cases, where the aperients were mild, occasionally conjoined with an alterative, where the diet was at the same time properly regulated, and the functions of the skin restored by a tepid shower bath, and the influence of a fresh atmosphere. He related a curious case, in which not only purgatives, but the arsenical solution, the sulphate of zinc, and various other measures failed, but in which music had the effect of procuring sleep daily, and at last of removing the disorder altogether. He cautioned the pupils against the free use of the lancet, and adduced a case in which it had nearly proved fatal; but he asserted, that he had seen moderate leeching useful in some cases where the intestinal lining was distinctly in a very irritable condition.

Hypochondriasis.

Hypochondriasis, mentally considered, Dr. ARMSTRONG regarded to be distinguished by an exclusive and selfish attention to the personal feelings, so earnest and undivided, as to be very apparent on the first interview with the hypochondriac. To this state of the feelings some persons were strongly disposed by original structure, but it was frequently acquired. Sometimes it was associated with that general disturbance of the nervous system which is so apt to be induced, in sensitive frames, by the worry of the world; sometimes it was connected with local irritation, especially of the mucous membrane of the stomach, accompanied by an overloaded colon; and sometimes it was produced by men taking an erroneous view of their own case, supposing it to be really serious, a circumstance very common amongst medical men, when their strength happens to be broken up, and when, at the same time, occasions arise to make the mind anxious. In some instances, hypochondriasis is connected with organic affections, but this mostly happens in old persons, and seldom occurs at an early age, the looks of the hypochondriac often belying the woeful tale which he so repeatedly relates. The cure of hypochondriasis is to be accomplished by rightly managing the mind of the patient, and by removing, by mild means, any bodily irritation which exists. Dr. ARMSTRONG warned his pupils not to indulge such patients in wishes to take a great deal of medicine, but to appeal to their common sense, so that they may, at the commencement, withdraw the mind from the contemplation of themselves, and fix it upon some external object with interest sufficiently intense, as a diversion from the distemper.

THE NEW ROYAL VICTORIA HOSPITAL, BELFAST.

By J. W. BYERS, M.A., M.D. R.U.I.,

PROFESSOR OF MIDWIFERY IN QUEEN'S COLLEGE, BELFAST; AND PHYSICIAN FOR DISEASES OF WOMEN TO THE ROYAL VICTORIA HOSPITAL.

IN the planning, construction, and furnishing of a large hospital associated with a medical school in a city like Belfast, the main considerations to be kept in view are as follows:—

1. The institution should be sufficiently large to be self-contained, it should be accessible, and it should occupy a position in which it cannot be deprived of light and air by contiguous buildings, or be fouled by the smoke from adjacent manufactories.

2. It should have as its object to secure the maximum of comfort for the patients and it should be so constructed that they are placed as regards sanitation, heating, and ventilation in a pure or aseptic environment.

3. It should be easy of administration in regard to dietetic and nursing arrangements.

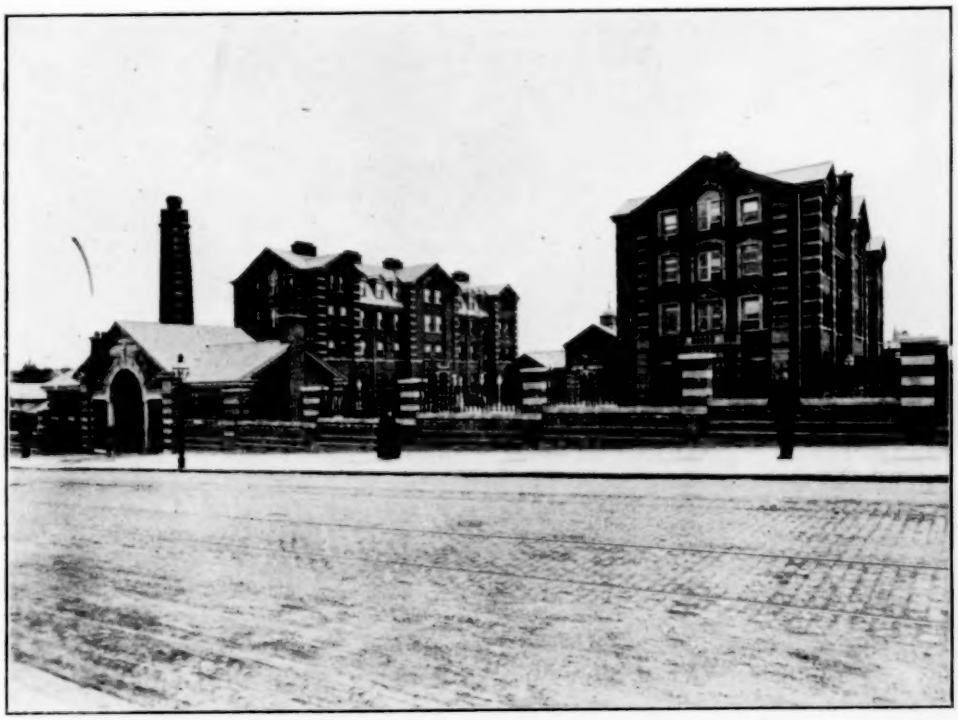
4. It should be so planned that the medical and surgical staff may be able to employ all the most recent scientific advances in every department of medicine, however special, that have been designed for the preservation of life and for the alleviation of suffering, while at the same time affording facilities for the practical teaching of those who will be the practitioners of the future.

5. The arranging of the buildings should, if possible, be finally referred to one or two experts who have a practical knowledge of construction and of modern hospital administration.

In a word, the ideal hospital should be planned and designed on the lines of a well-arranged manufactory in which the principal considerations are perfection of work and its accomplishment with care and despatch, while at the same time this maximum of efficiency should be secured at the minimum of cost. How far has the new Royal Victoria Hospital, erected as the outcome of a movement which began in December, 1896, during the mayoralty of the Right Hon. W. J. Pirrie to do honour to the Diamond Jubilee of Her late Majesty Queen Victoria, fulfilled the canons laid down?

1. Thanks to the generosity of the corporation of the city of Belfast the site of the new hospital at Grosvenor-street comprises six acres of land at present, while an additional six acres will be available when the patients at the old asylum are removed. This is an unusually large area for an institution within a city to find at its disposal. The district also is an elevated one with good mountain air. At present the site is bounded on two sides by streets, though it enjoys the special advantage of having at its northern aspect no buildings but only the beautiful Dunville Park. On the south side, where the wards are located, there is plenty of space for recreation grounds. The situation is a convenient one on a main road-artery of the city with a tram-line.

FIG. 1.



Main entrance of the New Royal Victoria Hospital, flanked by the two administrative blocks.

2. As regards internal construction, plumbing, heating, and ventilating the hospital is as near perfection as care and expert knowledge can make it. It is heated and ventilated on the Plenum system, which has been adopted in its most complete form and which will provide an equable temperature in summer or winter and will protect the patients from being affected by those sudden and protean changes so common in our variable climate, while at the same time by the constant change of pure air, cold in summer and heated in winter, the patients will live in a comparatively aseptic atmosphere.

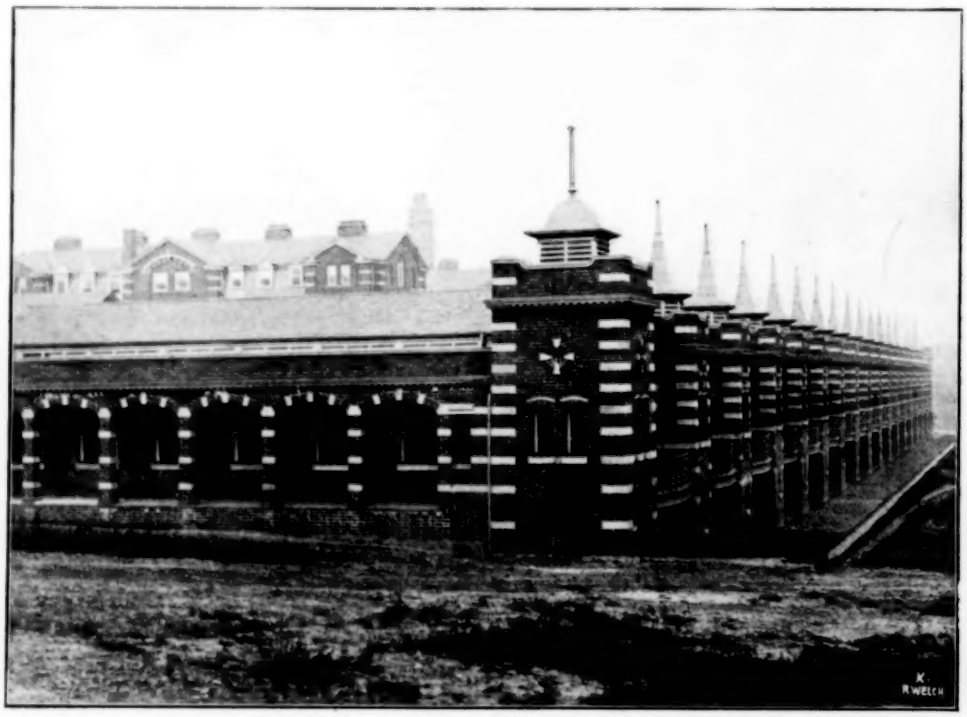
The ventilation is managed as follows. At the east termination of the main corridor is placed the air-intake and under this corridor the air-duct runs its whole length and

beyond it to supply two small isolation buildings. At its entrance the intake is 20 feet high by nine feet in breadth, while at its termination it is nine feet in breadth by a few feet high. The duct divides into the shape of an inverted ⅄ towards the east, each arm of the ⅄ ending in a circular aperture slightly larger than the rotating fan fixed in each aperture. These great fans are ten feet four inches in diameter, with six blades, and each is capable of driving 10,000,000 cubic feet of air per hour. The machinery lies in the space between the arms of the ⅄ and both engines and fans are duplicated. One propellor is used at a time, but the other can be put into use in a few seconds. Round each fan a large room is built with openings, and arranged in rows vertically in it are a large number of steam pipes. The air washed by passing through wet curtains of coir matting and heated by the pipes is, when thus warmed and purified, driven up the air-duct from which branch ducts run under the various corridors.

hospitals, a plan has been matured which promises success. Mrs. Pirrie is responsible for it. The patients' food will be carved in a second room off the main kitchen, it will then be placed in closed tins with hot-water jackets, put into trucks, raised to the main corridor by small food-lifts, and never opened until it is by the patient's side. In this way expedition in transit is combined with warmth of the food. The ward kitchens are furnished with racks like those used in a ship, so that every cup, plate, and utensil can be replaced in order and the matron in taking stock can see at a glance if any article is missing.

4. From the medical and surgical standpoint the arrangements of the hospital are admirable, representing the last word in hospital construction. Each of the four physicians and four surgeons will have a set of two wards, male and female, side by side. Running off each of these wards are two small wards and a kitchen. Each surgeon has his own operating theatre, the corresponding room assigned to the

FIG. 2.



West arcade and south front, showing upper part of west administrative block and sanitary turrets at the south ends of the wards.

In reaching the entrance to the ward the branch air-duct divides into two and feeds the air entrances in each wall. The exit channels from the wards and corridors end in sanitary turrets at the south ends of the wards where the air escapes through flapping louvre windows. At the entrance of the branch air-ducts from the main air-duct more steam-heated pipes are placed. The quantity of steam entering these secondary pipes can be regulated so that for instance, one ward may be kept at 70° F. and the adjoining one at 60°. In hot summer weather no steam will pass through the pipes. A change of air seven times an hour in winter and ten times in summer has been allowed for the whole building.

3. Owing to the adoption of the one storey system in the wards the necessity for staircases and passenger-lifts is avoided and labour to the nursing and medical staff is immensely minimised. Even in the arrangements for providing the patients with warm food, so often defective in

physicians being used for clinical teaching; and each physician and each surgeon are provided with a clinical laboratory. The gynæcological and ophthalmic wards, small and large, form distinct units, complete in themselves, with operating theatres and kitchens. There are thus in all six operating theatres, an arrangement which will facilitate the amount of work to be done, will encourage individuality and healthy rivalry, and will enable students to see the details of surgical technique in a most complete way. The furnishing of the wards and theatres is very thorough, all the recent advances to bring about the fullest asepsis being adopted. The beds are iron white enamelled and the greater number of them are so constructed that they can be raised or lowered at the head. The wards are all on the ground floor and, with the exception of the eye block, are on the south side of the main corridor, which is a noble structure 460 feet long by 10 feet broad. The wards are lighted from the top by vertical "lantern" lights and by a window at the end.

On the other side of the main corridor, at right angles to it, are the two administrative blocks, each with four storeys and a basement. In the western of these blocks are the kitchens, domestic offices, and nurses' and matron's quarters, while in the eastern block are the dispensary, day-rooms for resident medical staff, electrical rooms, "dark" room for photography, and bedrooms.

The out-patient department comprises an immense central waiting hall, the extern hall, 90 feet by 38 feet, with terrazzo floor and tiled walls. On either side are consulting rooms for medical, surgical, gynæcological, and ophthalmic cases. There are also connected with this great out-patient hall an emergency room and operating theatre, lavatories, and sitting rooms for the medical men and nurses. Below the extern hall are a large cloak-room and lavatory accommodation for students with a special staircase running to the central or main corridor.

There are a large pathological department, a mortuary with a view-room for jurymen, a post-mortem theatre to hold 70 students, with a small laboratory and museum *en suite*, two isolation blocks, and on the east side a thoroughly equipped laundry with the most modern machinery. Electric light is used throughout the building and an electric room is being furnished with Roentgen ray apparatus and arrangements for cautery and light treatment, while the most modern filters and ingenious methods of using steam from the boilers for sterilising dressings, instruments, &c., have been adopted.

There will be 12 resident medical officers, 17 members of the visiting staff (every specialty being represented) and an auxiliary staff (who hold office for two years). 76 nurses and 32 servants will be employed.

5. While the construction committee and the medical staff have done their utmost to make the new Royal Victoria Hospital worthy of the traditions of Belfast, the real credit for the marvellous success of this great undertaking belongs of right to the Right Hon. W. J. Pirrie and Mrs. Pirrie who have devoted an enormous amount of time, thought, and work to it. It is to their untiring industry and unselfish devotion that in this new Royal Victoria Hospital we possess so perfect a specimen of constructive art as applied in a thoroughly practical way to the science of healing. Mr. Pirrie has brought to bear on every detail in the construction of this new hospital from its inception until its completion the experience and specialised technical knowledge which he has gained in his own particular branch of business, while Mrs. Pirrie has in the fullest way utilised her acquaintance with the administrative management of a hospitail in its domestic and nursing relations. In addition to the mmense sum of money collected by Mrs. Pirrie for the building (£100,000) and endowing (£50,000) of the hospital, and apart altogether from what she and her husband so generously contributed themselves (a very large sum when it is all computed), they have crowned all their other deeds of charity by spending a very large sum on the furnishing of the wards.

FIG. 3.

A medical ward, showing lantern or continuous roof windows, an end window of southern aspect, and the openings on either side of the ward for the entrance of air.

The medical and surgical staff recognise to the fullest degree that in every detail their arrangements have been met by Mr. and Mrs. Pirrie in a way hitherto absolutely unknown in public hospitals. They believe that there is not for its size (300 beds) a more perfect example of a modern hospital than this new one in Belfast, nor one in which the main considerations in the planning, construction, and furnishing of a hospital associated with a medical school in a large city are so fully and amply fulfilled.

Other names to be mentioned in connexion with the institution are those of Messrs. Henman and Cooper of Birmingham, the architects; of Mr. Henry Lea, the consulting engineer; and of Messrs. McLaughlin and Harvey of Belfast, the builders. The cost of the building per bed will

not amount to much more than £300. This estimate, however, does not include the furnishing of the wards, while the site was free, and Mr. and Mrs. Pirrie paid the sum for buying out a public-house which was situated in one corner.

To the great satisfaction of all connected with the hospital, as well as of the people of Belfast, His Majesty the King is formally to open the new Victoria Hospital, erected to do honour to his distinguished and revered mother, on Monday next, July 27th. The gynæcological ward is to be named the Clarence Ward by Her Majesty the Queen in memory of the late Duke of Clarence.

FIG. 4.

The Extern Hall.

THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.

VICTORIA HOSPITAL FOR CONSUMPTION, EDINBURGH.

THE three new pavilions erected in the grounds of Craigleith House in connexion with the Victoria Hospital for Consumption were formally opened by Lord Rosebery on the afternoon of July 15th. The proceedings took place in a marquee erected in the grounds. The chair was occupied by the Lord Provost of Edinburgh, Sir James Steel, and there was a large attendance of well-known medical men and other prominent residents.

At present there are fully 70 patients in residence undergoing treatment. Craigleith House and a small annexe on its west side do not afford anything like sufficient sleeping accommodation for this large number of cases and, as a matter of fact, there are only 23 beds for indoor patients. The rest of the accommodation for sleeping purposes is found in a series of outdoor shelters arranged in circular form in the park in front of the house. This park, which is of considerable extent, is on a sunny slope facing south; it is completely encircled by a protecting belt of trees under which the patients can walk when the sun is strong. The patients of both sexes are quite reconciled to this outdoor life. The shelters, which are completely open on one side, each contain a couple of beds, and that there is no hardship in sleeping out under such conditions is evident from the fact that the resident physician at the hospital has elected to have a shelter for himself rather than a bed indoors.

The block plan of the extension shows a double row of "Y"-shaped pavilions—four in each row, with an administrative block behind. The state of the funds at present has only permitted of three of these being built. The pavilions are one storey in height, built of brick, with the floor about four feet above the ground. All the windows are of the steel casement type so that they can be opened to their fullest capacity. The four-bed ward is 29 feet by 16 feet by 12 feet in height and the six-bed ward is 29 feet by 23 feet by 12 feet in height. The floor, which is carried on iron beams, is of cement with wood on the top of it. There is a bath-room for every four patients, daily bathing being considered an important part of the treatment. The rooms are heated by open fires only, though there are hot-water pipes for the bath-rooms and sinks, and are fitted throughout with the electric light, as are also the shelters in the grounds. The smallest of the three pavilions—that with eight beds—now built is the gift of Mr. W. Younger, M.P. (for the Stamford division of Lincolnshire), Auchen Castle, Moffat. The hospital is free to all up to its accommodation with the exception of eight beds which are reserved for those who can pay to the fund £1 1*s.* per week. The extensions are from the designs of Messrs. Sydney Mitchell and Wilson, architects, Edinburgh.

The LORD PROVOST said that he thought that the citizens of Edinburgh would be pleased when they saw the large amount of work which was being done in the new pavilions. Work of this kind could not be carried on without funds and he made an earnest appeal for contributions in aid of the

institution. He added that any lady or gentleman wishing to have his or her name associated with one of the pavilions could have it done by subscribing a sum of £2500.

Dr. R. W. PHILIP then said that the Victoria Hospital was founded in 1887 by one or two persons as a memorial at the time of Queen Victoria's first jubilee. The programme of the promoters included, first of all, the establishment of a dispensary for the treatment of consumptive poor at their own homes and at the institution. The dispensary was originally situated up a stair in Bank-street and the first two patients were received on Nov. 22nd, 1887. In 1891 the dispensary was removed to the present commodious premises in Lauriston-place. The annual average attendance throughout the year, either at the patients' homes or at the dispensary, was 15,000. In 1898 the committee of the hospital acquired the property of Craigleith, including the old mansion house and some 16 acres of ground, for the sum of £17,000 and in 1902 the three new pavilions now about to be opened were commenced. The number of beds occupied at first was only 15. At the present time there was an average number in residence of 60. When the new pavilions were opened there would be a potential addition of some 32 beds. At the present time the expenditure was £1093 in excess of the ordinary income. When the new pavilions were opened the excess of expenditure would be some £3000 over the ordinary income. Capital funds had accrued from time to time in the shape of legacies and donations, but these had been unfortunately all used up.

Dr. T. S. CLOUSTON, President of the Royal College of Physicians of Edinburgh, said that the medical profession had watched that undertaking from its beginning with the greatest possible interest. The modern treatment of consumption was founded on the simplest principles and no doubt that was one of the reasons why it had been so absolutely successful.

Sir J. HALLIDAY CROOM, President of the Royal College of Surgeons of Edinburgh, said that he was one of those present when that hospital was founded and he had watched with great pleasure its progress to the present time and he was thankful to see it now a recognised institution of the city of Edinburgh. The consumptives of long ago used to go about with pale faces, anæmic, and hectic, but in that hospital young men and women were seen presenting no hectic peculiarity and no cough, but with good colour and evidently in the enjoyment of robust health. Such had been the change which open-air treatment had made in the patients there and while a great number of them were permanently cured the large majority of them were relieved for a long time and enjoyed a long period of good health.

Mr. MALCOLM MORRIS, honorary treasurer of the National Association for the Prevention of Consumption and other Forms of Tuberculosis, said that it was a privilege to be asked to go from London to take part in that extremely interesting and important meeting. Formerly the rich consumptive was sent to Africa, to Egypt, to the Alps, to all parts of the world where he could be protected from the stress of bad weather. No one if he could afford it would have dreamt of staying in Scotland. Now, through the experimental skill of Dr. Philip, it had been demonstrated that not only the poor but the rich might remain in Scotland and get as good advantage towards the cure of their consumption as if they went to the uttermost ends of the earth to find it. Experience had justified Dr. Philip's anticipations as to the success of the treatment and had discouraged the objectors who used to be loud in their commiseration of the poor unfortunate victim who was lying in the open air in a blizzard in December in Scotland. A very large sum of money was now being spent on the erection of sanatoriums. The association with which he was connected did not, however, recommend that sumptuous palaces should be erected all over the land, but rather that the disease should be met by simple means such as were adopted in the hospital which was now about to be opened. It was not necessary to spend £400 or £500 per bed, for patients could be treated satisfactorily in a simple building of this character in which not more than from £100 to £120 per bed were expended.

Lord ROSEBERY, who had a most cordial reception, said that surely there had been no more crying want than some infirmary or hospital which could deal effectively with the widespread curse of consumption. He had to his surprise been told by Dr. Philip that the open-air treatment had been in operation as long ago as the middle of the last century, but that in this country it had only been used for some ten years. It was difficult to bear the climate of Scotland in certain seasons with all the advantages of closed windows and bright fires and heating apparatus and so forth. It must then, he thought, have come as a shock to many persons to find that it was suggested that consumptive patients, who most needed care and sedulous attendance, were to be exposed for their cure to all the worst that the climate of Scotland could do. And yet it was an undoubted fact that that exposure had been of the most miraculous benefit to the patients who were not in a sufficiently advanced stage of the disease to make their recovery hopeless. Some patients, he understood, went through all last winter sleeping in the open air. Sometimes the snow had to be taken from under their beds when they arose in the morning and even when they were in the house the endeavour was made to keep every window open, and to approximate as nearly as possible to the conditions of the outer atmosphere, whatever that atmosphere might be, and to meet the demands made on the system by that cold treatment simply by clothing. He thought that those who went round that cheerful home of illness would be anxious, so far as their means permitted, to enable that experiment to be carried out on a much larger scale than it was at present. It was in ways like that that the wealthier members of the community could feel that their wealth was not altogether idle—that what was subtracted from their own pleasure to give to a purpose of that kind bore an interest not lower but higher than any money that they might otherwise expend.

The TREASURER (Mr. Norman Cairns, C.A.) stated that as the result of the appeal recently issued donations to the funds of the institution had been received or intimated amounting to £1489 11*s.* 6*d.*

The LORD JUSTICE GENERAL (Lord Kinross) having moved a vote of thanks to Lord Rosebery, and Sheriff GUTHRIE, K.C., having moved a vote of thanks to the Lord Provost, Sir ALEXANDER CHRISTISON handed a key to Lord ROSEBERY who thereupon formally opened one of the new pavilions.

ASYLUM REPORTS.

Down District Asylum (*Annual Report for 1902*).—The average number of patients resident during the year was 614, comprising 319 males and 295 females. The admissions during the year amounted to 184—viz., 107 males and 77 females. Of these 156 were first admissions. Mr. M. J. Nolan, the medical superintendent, states in his report that the gross number of patients admitted shows an increase of no less than 69 on the number admitted in 1901. "It is now a well-established fact," says Mr. Nolan, "that one fatal and rapidly increasing form of mental disease (general paralysis) is associated very intimately with a certain specific disorder which is propagated and fostered by some conditions of our social life, yet a pseudo-sentimentality prevents the legislature from grappling with this known root of evil which we pretend to ignore, though it is openly disseminated in the public streets. And this is but one of the many instances which might be quoted to show how the growing admission-rate to our institutions could be checked by means within our reach." The number of patients discharged as recovered during the year amounted to 57—viz, 34 males and 23 females, or 9·3 per cent. of the average number resident The deaths during the year amounted to 63, or 10·3 per cent. as calculated on the same basis. Of the deaths three were due to general paralysis of the insane, four to epilepsy, four to exhaustion from mania or melancholia, 12 to dysentery, 14 to pulmonary tuberculosis, 15 to cardiac disease, and the rest to other causes. "In a previous report," says Mr. Nolan, "attention was drawn to the great prevalence of affections of the heart in the insane of this district and each succeeding year has confirmed the observations then made." The record of deaths from dysentery is "the most regrettable feature of this report. ..... In the past year its type was severe and its acutely infective character was shown by the rapidity with which it attacked recently admitted cases." Plans for an extension of the asylum have been prepared and sanctioned and a sum of £20,000 has been voted for carrying out the extensions. The average annual cost of maintenance per patient has been reduced to £23 15*s.*, as compared with £25 6*s.* for the previous year. The inspector of lunatics states in his report that the general condition of the institution was highly satisfactory, that an isolation hospital was recently completed and that the last seven cases of dysentery which occurred were treated in it, that the patients were neatly and comfortably clad, that the dietary of the patients was varied and liberal, and that the medical case-books were carefully and well kept.

THE LANCET.

LONDON: SATURDAY, JULY 25, 1903.

The Recent Meeting of the General Medical Council.

THE special meeting of the General Medical Council which was appointed to be held on July 15th for the further consideration of the reports made by the Examination and Education Committees upon the examination in chemistry, physics, and biology of the Conjoint Board in England and of the Society of Apothecaries of London, and upon the returns from teaching institutions recognised by these two bodies, has come and gone without leaving any appreciable mark upon history. The subject matter at issue, as our readers know, was that of the preliminary scientific education of medical students. The General Medical Council, from the time of its establishment by Parliament until now, has steadily maintained the view that one of the chief needs of such students is the formation of the habits of mind which are produced by the early and systematic training of the intellectual faculties. This view, originally, perhaps, somewhat of the nature of a pious opinion, has been brought into increased prominence in recent years by the manner in which chemistry, physics, and biology have been found to throw light upon the causation and course of many morbid processes—a manner so declared that it is hardly possible for anyone who is not acquainted with at least the rudiments of the branches of science in question to understand either the nature of the changes wrought by disease against which the medical profession is called upon to contend, or the mode of operation of the remedies which are employed to control them. In this condition of affairs, in which the educational value of certain scientific studies has been enhanced by their growing practical applicability to the events of life, the General Medical Council determined to provide increased facilities for pursuing these studies, and to this end recommended that the medical curriculum should be extended from four years to five, and that the first year should be devoted to chemistry, physics, and biology in any teaching institution adequately equipped for the purpose. The recommendation was very maturely considered before it was adopted by the Council; and it was not opposed by the representatives of the examining bodies by which it has since been rendered of no effect.

The managers of the Conjoint Examining Board formed in London by the Royal Colleges of Physicians of London and Surgeons of England and, following in their wake, the examining authorities of the Society of Apothecaries of London, have so far failed to carry out the spirit of the recommendation of the Council that they have accepted the last year of study at any boys' school, in which there might be a pretence of playing at science teaching, as the first year of the medical curriculum; and thus, practically speaking, have left matters very much where they were. We conceive their action to have been profoundly mistaken and to be likely to produce effects disastrous both to the profession and to the public; but we desire to recognise that there are two sides to every question, and to place ourselves, as far as possible, in what we imagine to be the point of view of the corporations concerned. We have heard it said that they have of late years experienced a marked reduction in the number of the candidates for their diplomas, that their expenses are heavy, that the business of conferring qualifications is falling off, and that they have deliberately set themselves to cheapen medical education for the purpose of removing at least one of the hindrances to their prosperity. We mention this suggested explanation only in order to emphasise our inability to accept it. The true explanation of the attitude of the Royal Colleges is to be found, we think, in observations made by Dr. NORMAN MOORE, the representative of the Royal College of Physicians of London, at the meeting of the General Medical Council which we are now considering. The College, according to Dr. MOORE, is of opinion that in the regulation of examinations the Council has no power but only liberty to criticise, and he adds, perhaps with more politeness than accuracy, that its criticisms would receive the greatest possible consideration. "The Council had one opinion and the two Colleges had another" and the Colleges claimed the right of determining the question at issue in their own way. They were, in fact, according to this view, defending their rights and privileges against unprovoked aggression and were entitled to the sympathy of all freeborn Englishmen. It is difficult to add without a smile that they also conceive themselves to be acting in the public interest by encouraging scientific education throughout the country. We presume this to mean that, if every school with five shillings' worth of scientific apparatus is to be considered qualified to conduct the first year of medical education, schools fulfilling the condition will be likely to increase in number and that the pupils leaving them who do not become medical men will be likely to have a more correct appreciation of "science" than they might otherwise have attained. Dr. MOORE correctly said that the Council "had quite a different set of views" and we can only hope that it will retain and give effect to them. He added that the Council "had been trying to enforce authority as a regulator of places of study which the Colleges maintained it had no right to do."

The actual question before the General Medical Council was as to the expediency of exercising the power conferred upon it by Act of Parliament and of reporting to the Privy Council that the courses of study and examination required by the two Colleges in question and by the Society of Apothecaries are insufficient. The General Medical Council adopted a report referring to the two Royal Colleges which said, among other things of similar tendency, that the "main portion of the practical examination (in chemistry, physics, and biology) is empirical and not scientific and is no test either of sound principles or of practical efficiency." With regard to the Society of Apothecaries, a report was adopted which declared that the examination in the same subjects was insufficient; but the Council seemed to agree with Dr. D. MACALISTER

in the belief that it could not be worth the while of the corporations concerned to maintain the present attitude of opposition to the regulations of the Council, and it was therefore determined officially to call attention to the state of things which the reports had disclosed and to invite reconsideration of the whole subject. In other words, it was determined to offer every opportunity for the graceful abandonment of an untenable position. We call the position untenable because it is clear that the General Medical Council was called into existence for the precise purpose of doing what the Royal Colleges say it has no right to do. The Medical Act of 1858 was accepted by Parliament almost without discussion, but Mr. COWPER, who had charge of it, told the House of Commons that the business of the General Medical Council would be "to fill the function of visitors in the *existing* licensing bodies and to *ensure* efficiency of *teaching* and of *examination*." No other work was even mentioned in Parliament as likely to devolve upon it. The necessity for creating an authority for this purpose was manifest. The charters of the Royal College of Physicians of London refer only to England, but by the Act of 1858 the holders of its qualifications acquired the right to practise in Scotland and Ireland. It is obvious that the populations of these countries were entitled to protection against ignorant English medical men, just as the population of England was entitled to protection against ignorant Scottish or Irish medical men. Without some central controlling authority medical education in the three divisions of the kingdom might easily become chaotic; and that central authority the General Medical Council was established to provide. With such reports before it as those to which we have referred its duty is plain and cannot long be neglected without disgrace. The Privy Council may or may not take adequate action upon any representation made to it; but with that contingency the General Medical Council has no concern. Its responsibility will cease as soon as its duty is discharged.

The Cavendish Lecture on Disease of the Ascending Aorta.

"IN a little tract of the brain, one so small that an infant might grasp it, lies the engine of all that makes life worth living; and but a few inches below it, where brain and spine unite, is a still smaller tract where lies the knot of life itself. The upper tract has its times of energy and of repose; by sleep its ravelled sleave is knitted up; but the knot of life itself knows no pause, no quiescence; let its vigilance be at fault for a few seconds and the busy frame it governs will drop into silence. Save as a lesson in physiology these are strange parts to us, yet there is another unsleeping minister of life—our familiar—of whose pulses HARVEY was rapt into saying that 'they are of the spirit of the blood acting superiorly to the powers of the elements ..... and that the soul in this spirit and blood is identical with the essence of the stars.' When the pulses of this instrument beat in harmony we feel within us that all is well, when they are jangled and out of tune we are dismayed. ..... 60 times a minute at least, 3600 times an hour, 86,400 times per day, for us heedful and heedless does this shuttle of life throb to and fro; for us in tireless periods this pendulum of man's gravitation tells the seconds which can never return. Tireless as it seems, tireless and everlasting, yet it will cease; nay, when youth is past in every beat there may be an irreparable wound. Hour after hour the blood leaps against the vault of its conduit, straining the bonds of it, searching its strength, testing its elasticity." With these well-chosen words Professor CLIFFORD ALLBUTT commenced his Cavendish Lecture on Disease of the Ascending Aorta before the West London Medico-Chirurgical Society on June 26th, a lecture which for choice of diction and literary charm recalls the fascination of the lectures of such masters of style as Sir THOMAS WATSON and TROUSSEAU and the times when conspicuous literary attainments were perhaps more general among physicians than at present. We published the lecture in THE LANCET of July 18th, p. 139.

At the outset of his remarks Professor ALLBUTT limited himself to disease of the arch of the aorta, not necessarily associated with cardiac disease and taken apart from general arterial changes—in other words, the forms of acute and chronic aortitis considered from the clinical and pathological standpoint as having "not only a certain independence of disease of the heart but also of the aortic valve itself." After stating that the aorta enjoys no complete immunity from the attacks of bacteria, though the extent and nature of its attack by these organisms are as yet imperfectly understood, Professor ALLBUTT went on to say: "A circulating poison, whether inorganic such as lead, evil humour such as gout, or virus such as that of syphilis, apt to enter into chemical relations with the wall of the vessel, would seem to be fraught with a greater peril to it than the microbe which would be chased along swifter currents to settle in regions of sluggish irrigation." Pathologically, acute aortitis has been long known; the great MORGAGNI was aware of it; and an account of it was given by HODGSON in his Jacksonian Essay of 1814. It is not always the grave and dangerous disease it is commonly imagined to be and is probably of greater frequency as an incident in other diseases than is yet generally recognised; thus its occurrence in various specific fevers is now well substantiated—e.g., in variola by M. BROUARDEL and M. THERÈSE, in measles by Dr. A. E. SANSOM and Dr. SAMUEL WEST, and in scarlet fever by Professor LANDOUZY and Professor SIREDAY. In acute rheumatism, again, aortitis occurs, in some cases as an extension from the heart, but in some beginning independently and in others resulting as an extension from pericarditis. As might be expected, an infective aortitis may occur in association with malignant forms of cardiac inflammation, as in the case of acute verrucose aortitis recorded by Sir DYCE DUCKWORTH. In typhoid fever, in influenza, and in diphtheria the occurrence of acute aortitis rests upon almost unimpeachable evidence and that it may occur in pneumonia seems very probable. A form due to malaria, though fortunately rare, seems to be characterised by its severity and tendency to cause permanent damage. Tuberculosis of the aorta, though very rare, is not unknown. The importance of syphilis as a factor in the production of disease of the aortic arch was also discussed by Professor ALLBUTT. Syphilitic aortitis is usually chronic,

and though mostly associated with general syphilitic arteriosclerosis is not necessarily so and may indeed be of rapid course. It soon passes into atheroma, so that after middle life we have no means of clear distinction, in many cases, at any rate, between syphilitic and atheromatous disease. Discussing chronic aortitis and its relation to atheroma Professor ALLBUTT would restrict the term atheroma to the decaying or necrotic phases of inflammatory or reparative processes, and then goes on to make the important statement that "all diseases of the aorta, if they pass into chronic states, tend to atheroma. Syphilitic arteritis, if occasionally to be recognised in its earliest manifestations, becomes ultimately atheromatous but leads even more decidedly largely to altered diameter, bossing, scarring, wrinkling, and puckering of the vessel." If this use of the term atheroma could be generally adopted it would seem to us to do much to clear up the divergence in the accounts of arterial disease and atheroma at present existing.

With regard to the symptoms of aortitis, they can hardly be said to form a characteristic group. They comprise headache, vertigo, and a dyspnœa of spasmodic character not unlike that of asthma but without the relief by expectoration and without Curschmann's spirals. This dyspnœa Professor ALLBUTT surmises may be due to some reflex irritation. Pressure symptoms may develop in mere dilatation of the arch and by no means necessarily indicate aneurysm or tumour—such are spasmodic closure of the glottis and minor degrees of distension of the branches of the superior vena cava. Pain is by no means constant and may be of true anginal character even in the absence of coronary atheroma. Physical signs are for the most part only obtainable in the fully-established disease of chronic aortitis and atheroma—such are signs of premature senility or the veins of the neck may appear too prominent and may even pulsate. Arterial pulsation may also be obvious in the same region, apart from aortic regurgitation, and there may be some difference of strength in the beats of the two carotids. The arch of the aorta can often be felt in the suprasternal notch and with the shoulder depressed the right subclavian artery may be palpable or even visible above the clavicle. More trustworthy evidence of elongation of the ascending aorta is undue mobility of the heart's apex. Radioscopic examination may also give evidence of the dilatation, but percussion affords the most valuable evidence, giving according to the degree of dilatation a dull area including the manubrium sterni and extending towards the second space and third cartilage on the right side, forming a curved area likened by POTAIN to the crest of a fireman's helmet. Auscultatory signs are inconstant and not pathognomonic, the most useful being a certain quality of the second sound, called by POTAIN the *bruit de tabourka*, the tabourka being a drum made of a skin tightly stretched upon an earthen pot. Another sign of some considerable importance is the friction from a dry basic pericarditis, due to an extension from the aortitis; this is particularly liable to be associated with anginal attacks.

We have said enough to show how interesting an address Professor ALLBUTT provided for the audience and we may, in conclusion, express the hope that his stimulating presentation of the state of our knowledge of a difficult and little known subject will be productive of increased observation and further advance.

Rex v. Dougal.

NOW that SAMUEL HENRY DOUGAL has paid the extreme penalty of the law it may be well to recall some of the incidents of his crime and to direct attention to facts of medico-legal interest elicited before the justices and the coroner and at the trial. The facts of the story, though full of sensational interest on the surface—and, indeed, they resemble remarkably the episodes in a lurid novel of the WILKIE COLLINS school—conceal a sufficiently base and sordid crime. Until Miss CAMILLE CECILE HOLLAND, a lady, 56 years of age at the time of her disappearance, came under the thraldom of DOUGAL she would appear to have led an irreproachable life. But swayed by an overpowering influence she gave herself up body and soul to the man who ruthlessly compromised her character, despoiled her of her possessions, and brutally murdered her. The annals of crime have seldom furnished such a fearful and long-drawn-out tragedy. DOUGAL was not a murderer of the common or vulgar type. He was a man of considerable attainments whose intellectual ability was made subservient to his depravity. Accused of arson, and convicted and sentenced for forgery, there was reason to suspect that he had been guilty of a more serious offence. Whether he had premeditated the doom of Miss HOLLAND when he persuaded her to become the tenant of the lonely farm at Clavering will never be known. It is scarcely conceivable that at her age he formed a *liaison* such as is usually prompted by youth and its incidental attractions. The alliance was almost certainly merely the means of obtaining control over Miss HOLLAND'S property. To make the control absolute was probably the chief motive of the murder. The fatal event may have been precipitated by the complaint of a servant-maid to her mistress of DOUGAL'S attempt upon her chastity, for Miss HOLLAND may have announced her intention to leave him in resentment of his insulting infidelity. It will never be known, but it seems probable that fear of a loss of influence over his victim determined his intention to murder her.

Having carried out his terrible purpose DOUGAL remained at the Moat Farm. That he could live a life of luxury and pleasure for four years in sight of the lonely grave proves how utterly lost he must have been to feelings of dread and remorse. This, coupled with the fact that he had been confined in an asylum whilst serving his sentence for forgery, might have given some support to a plea of insanity had this been the line of defence at the trial. It is certain, however, that the plea would have been futile, for there are grounds for supposing that the alleged lunacy was feigned. The defence, however, relied upon the absence of proof of the death of Miss HOLLAND. It was necessary that the prosecution should establish the identity of the body found in the ditch at

the Moat Farm and that a murder had been committed. The latter was proved beyond doubt, for the bullet wound in the head could not have been self-inflicted and the question of accident was, to all intents and purposes, negatived by the secret disposal of the remains. The clothes of the deceased person were singularly well preserved, so much so that several articles of dress, including the boots, could be sworn to by disinterested witnesses. As regards the body itself, the angle made by the shaft with the neck of the femur, the condition of the cranial bones, and the state of the teeth showed that the age was not less than 40 years and not more than 60. The length of the body was approximately five feet four inches. As it was found it measured five feet one inch, but allowance had to be made for shortening on account of (1) the curved position of the spine; (2) lateral inclination of the neck; (3) slight bending at the hip-joint; and (4) wastage of the soft tissues. The period of sepulture was fixed at between three and five years. It was four years since Miss HOLLAND was last seen alive and then she was in the company of DOUGAL. From the condition of the brain, which still retained its shape and presented a pink colour on the surface owing to the changes in extravasated blood, it was inferred that burial took place shortly after death. The marked degree of preservation of the brain contrasted strongly with the generally advanced stage of decomposition of the other parts of the body. The greater part of the soft tissues had been converted into adipocere. It is interesting to note that the kidneys were better preserved than the other viscera, including the uterus. They could be easily recognised lying in a bed of partially saponified fat. It is difficult in any case to establish the date of death from the extent of decomposition of the body, for it is well known that bodies buried at the same time under exactly similar conditions vary immensely as to the rate of decomposition. In the case under consideration the circumstances tending to delay disintegration were (1) the body being clothed and (2) the depth from the surface at which the body lay—about four feet—which would greatly tend to exclude the air circulating in the soil and conduce to a low and uniform temperature. The bullet found in the skull of the deceased weighed 85 grains. A splinter from the same impacted in the bone at the aperture of entry weighed two grains. Several revolver bullets discovered in a room at the Moat Farm were similar in make and weight to that removed from the body.

It is a legal maxim that a prisoner is not to be judged adversely for declining to go into the witness-box when being tried for a criminal offence. At the same time it is difficult to imagine that a jury would not be influenced thereby. Lord BRAMPTON—formerly Mr. Justice HAWKINS—was wont to insist upon the advisability of a prisoner making a statement at the earliest possible moment. An innocent man has nothing to fear by taking such a course. When it became known that DOUGAL'S counsel would call no witnesses to rebut the indictment it was felt that the net spread round the prisoner by the prosecution afforded scarcely a loophole of escape. Both in bulk and detail the medico-legal facts set out above formed a mass of evidence against the prisoner that he could not combat. The identity of the victim and the fact that murder had been committed were alike proved incontestably, and the verdict became a foregone conclusion.

Science and its Industrial Applications.

"WITHOUT these dilettanti," once remarked Dr. SIEMENS (referring to the work of rich, independent men of science in this country), "England would be nowhere." Whilst it is a fact that in spite of the State assistance given to the work of research in Germany England records greater results of progress it is also an equal truth that notwithstanding all the splendid discoveries with which English scientific men are justly accredited the applications of these discoveries to the improvements of the arts and the industries have been utilised almost entirely by German manufacturers considerably to the detriment of English trade. In no other civilised country have the people been slower to realise the value of the application of its own discoveries to technical industries than in England. One very important example of this is well known to be that of the aniline industry. The whole series of coal tar colours now in commercial request had their origin in the discovery of an English chemist and yet by far the biggest share of the aniline trade is in the hands of German manufacturers. It would indeed be difficult to define the limits of this industry which gives employment to hundreds of thousands. The manufacture of aniline has further opened up new and profitable fields. Aniline was undoubtedly the foundation of commercial synthetic chemistry and what synthetics are there amongst even the few which are comparatively familiar to medical men which do not come from a German "fabrik"? Again, an absolute end to the indigo plantation industry is threatened, if it has not already come, for so extensive a knowledge of synthesis has the manufacture of coal tar derivatives given to those who have pursued the subject that not only is the chemical structure of indigo known, but the artificially prepared product is now actually made in commercial quantities (but not in this country) which is indistinguishable from the natural colouring matter obtained from the plant. The need has long since been recognised of bringing such facts home to the mind of the English manufacturer and the English public, but it is only comparatively recently that public opinion has realised at length that what might have been a very valuable asset to the country has, at any rate for a time, been lost. It is mortifying to think that the country which gave birth to a valuable idea has failed to nourish it and has allowed it to grow in other countries where it has become a source of industry and profit to the people.

In view of the magnificent proposal, backed by the promise of substantial financial help, which Lord ROSEBERY recently laid before the London County Council, and which was discussed at the meeting of the Council on Tuesday last, we hope we may be on the eve of a movement which will not only give in the very near future a powerful stimulus to original research but also to the application to manufacture of the fresh knowledge which is invariably gained in such scientific pursuit. It is proposed to found a technological

institution on the lines of the great technical school at Charlottenburg in Berlin. The English student has undoubtedly a faculty for research and the nation is justly proud of the record of highly important discoveries in medicine, chemistry, and physics which it possesses, but the faculty of applying the results of discovery to technical industry is unquestionably capable of considerable development. We, however, cannot conceal the impression that however highly we may train the student in this direction, yet such training might as well be thrown away if the coöperation of the manufacturer by availing himself of the services of such a trained person cannot be secured. We venture to assert that there are manufacturers in England at the present time who systematically and persistently refuse to engage well-trained scientific men in their service because of the tendency of the man of knowledge to suggest new lines upon which certain technical processes might be advanced or a procedure in manufacture which would effect an important economy. Even when a scientific adviser is employed he is as a rule very badly remunerated; his salary is utterly inconsistent with the education and training which he has had and in general is not on a higher scale than that of a well-paid clerk or manager of works, and he has to submit to many indignities. The services of a scientific man, they urge, would be likely to be meddlesome and to interfere with the even tenour of an old-established business. This attitude on the part of manufacturers has done more to hinder technological progress in this country, in our opinion, than the lack of training institutions. We want men, they say, to do as they are told and not to make suggestions which might (if tried) interfere with the partial success of existing methods and processes. The competition of other countries has now, however, turned the tables completely upon the men who took this ignorant view. The trade has gone abroad and they have lost a very large proportion of their business. Before Lord ROSEBERY'S scheme can be a success, therefore, we maintain that our own manufacturers must be induced to realise that men well trained in the laboratory can help them in a great many ways. They can help them to economise production, to save waste, and to raise the standard of the product. Once convince our leaders of industry of these things and there will soon be a great and growing demand for the technological expert for whose training Lord ROSEBERY'S princely proposal to the London County Council seeks to provide. At the weekly meeting of the Council on July 21st the recommendations of the joint committee which was appointed to consider Lord ROSEBERY'S scheme were approved. After discussing the questions of site, buildings, and equipment, the committee thought that while the Council would wish to express its high appreciation of the value and importance of Lord ROSEBERY'S proposal it should not do more at the present juncture than offer a conditional support.

The movement is, of course, of the greatest national importance; it has made an excellent start and if the necessary funds are forthcoming we feel convinced that its career will be progressive and its work a source of profit to the nation. But its administration must be conducted on broad catholic lines and there must be reciprocal action in the way which we have indicated.

Annotations.

"Ne quid nimis."

NATIONAL PHYSIQUE AND THE ARMY.

MUCH attention coming from various sides has of late been brought to bear upon a matter of the highest national importance—namely, the physical vigour of the British race as a whole and of that stratum of it in particular from which our army recruits are mainly drawn. While there would seem to be little or no evidence to indicate that the people at large are deteriorating in physique, at any rate not that portion of them who can secure a healthy environment with good and sufficient food, the case is very different when we go lower. We at once come in contact with a number of facts and conditions that are only too well calculated to arouse feelings of alarm. It will not be from any lack of representation on the part of those who should be most competent to form an opinion if public attention be not thoroughly awakened to the gravity of the problem that has to be faced. We have recently been furnished, for example, with the results of prolonged and careful investigations on the part of Mr. Charles Booth and Mr. S. B. Rowntree as regards London and York respectively, while General Sir Frederick Maurice has placed on record his experience as to the large number of young soldiers who are found to be unfit for army service within five years of their enlistment. A debate has taken place in the House of Lords on this subject of physical degeneration; the Duke of Wellington has published an important communication on national training and physique in which he has instituted a comparison between the statistical results obtained in our army as compared with those of the German army in particular and with those of France, Italy, Austria, and Switzerland in general. And now the Director-General of the Army Medical Service has issued a special and important memorandum on the subject as it affects the British army. Sir William Taylor's memorandum takes for its text Sir Frederick Maurice's paper on National Health published in the *Contemporary Review* last January and noticed by us at some length at the time. The Director-General, after considering all the facts there adduced and others furnished from sources available to him, asks that an inquiry may be made by a commission into the causes of physical deficiency and thinks that the advice of the Royal Colleges of Physicians and Surgeons might be asked as to the necessity of the inquiry and the scope and composition of the commission. We can scarcely recall a time when recruiting for the army has not been a bone of contention among military critics. But the difficulties have been growing apace and have now reached a stage of real urgency. There is pressing need for investigation in view of a thorough reorganisation and reform of our entire recruiting system if we are to possess and to maintain an army for defence of the empire. We are sure that all the medical corporations will lend to the State any aid they can in making an investigation. There are many reasons to account for the present state of things. Emigration has drawn off large numbers of the strong and enterprising from the population. The decreased demand for agricultural labour in all rural districts as compared with the increased demand in manufacturing districts and big centres of population has given rise to migratory movements in the direction of the latter with its concomitant evils. Ireland no longer furnishes the rich recruiting field that it once did. Apart from other deteriorating conditions of city and "slum" life the recruit has often been half starved from childhood upwards and is impelled by hunger to make an attempt at enlistment in the army. It is often not so much a question of better

training as of better feeding that has to be met. In such circumstances it is not, perhaps, to be wondered at that so many are primarily rejected, or having succeeded in enlisting soon afterwards prove unfit for a soldier's life and duties. What is wanted for the army at the present time is a more extended recruiting field to enable us to improve the quality as well as to increase the number of recruits—in other words, we require to tap fresh and better social sources of supply. But while we say this we must not be taken as allowing that a national deterioration in physique has been proven, or as being convinced that any inquiry by a commission is likely to have practical results. These two points require further consideration.

THE ILLNESS AND DEATH OF THE POPE.

WE publish at p. 253 of this issue an account from a well-informed correspondent of the illness and death of the Pope. From a medical point of view it is a remarkable story of endurance and of the value in prolonging life of assiduous medical attention. His Holiness, when in his ninety-fourth year, was seized with a chronic form of pneumonia, accompanied by pleural effusion, and for three weeks he lived, almost without intermission in possession of his senses, on the very edge of the grave. Save for a few hours, when a rally flattered the hopes of some of his *entourage*, his Holiness was in mortal sickness, almost in death agony, throughout the whole period; but his medical men, assisted by his devoted valet, were able to combat now one symptom and now another and so to prolong his life while assuaging the pains of death, the courage and docility of the illustrious patient seconding all their efforts. The qualities that earned for Leo XIII. the position of the greatest Pope since the Reformation shone out on his beautiful death-bed.

THE DEVELOPMENT OF A HEALTH CONSCIENCE.

IF it is true that the expression of an ideal is the first step towards its realisation, then we must forthwith congratulate Dr. T. S. Clouston on the wide step which he has taken in the address which we published in THE LANCET of July 11th, p. 81. At any rate, and all questions of practical realisation aside, we have been provided in this address with a picture of *Hygeia triumphans* that makes vastly pleasant reading. We have beheld diseases vanquished or anticipated, a nation happy and healthy, and a medical profession respected as the chief director of the national welfare. So physically prosperous, in fact, is the national portrait as limned by Dr. Clouston that the reader almost asks whether a few generations further would not eliminate the medical profession altogether as of no further use in the commonweal which it created itself. It is only fair to Dr. Clouston to point out that he is not content with merely sketching an ideal condition but goes so far as to outline a definite scheme of procedure by means of which he believes the ideal might be attained. The first object that must be achieved in the progress towards perfect national health is a "health conscience." The attainment of this presupposes an amount of knowledge and a feeling of responsibility which Dr. Clouston proposes to instil into the community by means of his educational scheme. Dr. Clouston speaks for Scotland only, but his remarks apply equally to the rest of Great Britain when he says that "there are unoccupied health fields, that the public weal urgently demands further efforts to improve the health and the organic welfare of the people, and that the recent advances in science and in medicine enable such efforts to be successfully made." The question then arises—on whom does the duty fall of making efforts towards these advances? Dr. Clouston would assign the duty to three medical corporations and it is here that we are inclined to disagree with him. A work so purely educational as the first steps must be in the hygienic progress which Dr. Clouston forecasts ought to emanate, it appears to us, from a university—from a body the very existence of which presupposes the idea of the fostering, the increasing, and the dissemination of all kinds of liberal knowledge. In the university should be expounded and promulgated these admirable ideas on individual responsibility in the matter of national health and from the university into every branch of the community should go forth the men to show the way of progress to their fellows. It is not enough that the medical corporations should strive to develop a national health conscience; the broader fields that a university cultivates must also be sown with the good seed. That wider influences than those naturally exerted by medical corporations are necessary Dr. Clouston himself realises and he is anxious that the general press should be utilised. This would, no doubt, be the most powerful weapon that could be brought to bear upon the intelligence of the general public. It is also one which would need the most careful handling and one in the use of which sound medical views must underlie action. At present, in this country at least, sound medicine and the general press are rarely associated.

THE EFFECT OF WEATHER ON THE CRIMINAL CLASS.

THERE is undoubtedly a relationship between character and climate and the very variable weather of England is unquestionably accountable to some extent for the instability of temperament with which the Englishman is generally credited. He is a proverbial grumbler; he is influenced by the ever changeable meteorological conditions characteristic of the climate of his country. Changes of temperature, of atmospheric pressure, of the degree of humidity, alternating dull weather and bright weather, determine varying phases in the human disposition. The ancients knew it; Hippocrates pointed out that the south wind dulls the sense of hearing and sight, causes headache, heaviness, and faintness, that the north wind affects the chest and throat, and further, that the south wind relaxes while the north wind contracts the tissues of the body. In brief, seasonal changes give rise to seasonal symptoms. The human physiology is affected and accordingly the human disposition is influenced. A dull day is depressing, a bright day is cheering. It would appear, however, that no such elasticity of disposition or temperament belongs to the criminally intent, judging from the fact that their conduct shows no important departure from the normal under differing meteorological conditions. In an article contributed to our columns this week occur some interesting statistics based upon the conduct of criminals at Portland under varying conditions of weather. It does not appear that different states of weather influence the criminal either one way or the other—that is for good or for bad. From the statistics given, which extend over a period of three years, the criminal is not apparently affected by the outlook, that is to say, by conditions of weather described as foggy, snowy, stormy, overcast, rainy, or fine. Nor does the average of daily offences tend to show that the direction of the wind has much effect upon him. It may be remarked, however, that the winds which prevailed during the highest average of offences are those least experienced in this country, such as the due north and the due south winds. So far, then, the most commonly occurring winds appear, luckily enough, not to stimulate the criminal to commit any serious breaches of the ethical code. As regards the variations of atmospheric pressure, it is not on the face of it possible to make either a positive or a negative assertion;

they are without any noticeable effect. Ranges of temperature appear to deflect the moral tendency to some extent, low temperatures serving to increase the daily average of prison offences. On the whole, the article appears to show that the criminal is insensible to external impressions, while in similar circumstances the normal individual is affected sometimes considerably. The fact that criminals are thus shown to be deficient in responding to external influences may afford comfort to those who are depressed and irritable in bad weather or whose sense of well-being is elevated in bright weather, for such a susceptibility to meteorological changes would imply strength of moral character.

THE METROPOLITAN WATER-SUPPLY.

THE report by the Water Examiner on the condition of the London water-supply during the month of May has recently been published. The Thames river water was in good condition from the 17th to the 30th days of the month. The engineer to the Chelsea Company reported that the water was of "bad" quality from the 1st to the 10th days of the month and of indifferent quality from the 11th to the 16th days inclusive and also on the 31st day. The height of the river level varied from a point two feet nine inches above to one three inches below the average summer level. The total rainfall during May was 1·85 inches at West Molesey. The average daily supply of water abstracted from the Thames was 117,944,722 gallons, from the Lee 51,947,980 gallons, and from "springs" and wells 45,152,851 gallons. The ponds of Hampstead and Highgate supplied 251,595 gallons. The total daily supply was 215,297,148 gallons for a population estimated at 6,498,271, and this represents a daily consumption per head of 33·13 gallons. The average number of gallons supplied per head per day was greatest in the case of the Chelsea Company (42·57 gallons) and it was least in the case of the East London Company (27·69 gallons). In the table of details supplied by the water companies a column is devoted to giving a numerical representation of the approximate percentage delivered by each company for other than domestic purposes. The Chelsea Company's return is "20 exclusive of waste," that given by the East London Company is 30 (per cent.). It is not clear from the Water Examiner's report whether in the table which he gives he takes into account the amount of water used for "other than domestic purposes." If he does not the discrepancy between the amount of water credited to the Chelsea and the East London customers is even greater than the table represents. During the month of May the Southwark and Vauxhall and the Grand Junction Companies distributed a smaller supply per head than they did during the corresponding month of the year 1902. The other six companies supplied a larger average daily amount per head. The Chelsea, East London, Grand Junction, and West Middlesex companies profess to give a constant supply to all their customers. Of the other undertakings the Kent Company gives constant service to 99·8 per cent., the New River to 96·8 per cent., the Southwark and Vauxhall to 95·4 per cent., and the Lambeth to 78·5 per cent. The proportion of brown tint in samples observed in a two-foot tube ranged from three to 33 of the standard in use and "the water of the Lambeth Company exhibited the deepest average tint of brown." The Water Examiner states that "all the samples of water collected at the works of the companies were clear, bright, and free from suspended matter." Dr. T. E. Thorpe, F.R.S., the chemist who makes the analyses of the metropolitan water-supply on behalf of the Local Government Board, made a full analysis of one sample of each of the waters supplied by the metropolitan companies on May 18th. He found that the proportional amount of organic impurity contained in these specimens could be numerically expressed as follows: Kent, 8; New River, 27; East London, 39; Southwark and Vauxhall, 45; West Middlesex, 46; Chelsea, 61; Grand Junction, 69; and Lambeth, 73. Three other full analyses of water were made, the first of a sample of the East London supply on May 8th (this was taken from the public baths, St. George's-in-the-East), the second of the Lambeth supply taken on May 12th (from the cab rank, Waterloo-road, opposite St. John's Church), and the third of the Grand Junction supply taken on May 13th (from the cab-rank, Pickering-place, Westbourne-grove). The results of these analyses showed that the relative amount of organic impurity found was correctly represented as follows: East London, 59; Lambeth, 84; and Grand Junction, 94. In regard to the sample of water taken on the 8th from the East London supply Dr. Thorpe says it "was derived from the company's Thames and Hanworth sources and was inferior in quality to that distributed in the previous month; it contained an amount of organic impurity similar to that found in the Chelsea Company's water, and from the high proportion of nitric nitrogen it was evident that the mixed supply contained a much larger proportion of the Hanworth gravel water than usual." It seems strange that the water conveyed to the public baths at St. George's-in-the-East should have been all derived from the Thames and Hanworth sources of the East London Company, and we cannot profess to understand how this can have happened, but we welcome the fact that Dr. Thorpe has turned his attention to an investigation of these supplies. Dr. Thorpe's inference that his analysis showed that in the sample which he examined there was an unusual proportion of Hanworth gravel water is also rather puzzling. The waters supplied by the Lambeth and Grand Junction Companies on May 12th and 13th were of "bad quality"; they were "very highly coloured" and contained "excessive quantities of vegetable organic impurities." Dr. Thorpe insists strongly on the unsatisfactory quality of the water distributed by these two companies and says that their "supplies from the 11th to the 20th were of bad quality owing to their high colour and excessive organic contents. Indeed," he adds, "the proportion of organic impurity in the Grand Junction Company's water on May 13th was the highest which I have found in any filtered Thames water since I commenced the examination of the metropolitan supply." In regard to the Chelsea company's supply Dr. Thorpe says that a general consideration of the analytical results which he obtained indicates that "notwithstanding the available storage (13·8 days) possessed by the company the quality of the supply was somewhat more adversely affected than it usually is by floods." The water supplied by the Kent company was invariably found to be of high organic purity and of excellent quality.

ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THE annual banquet of this association was held in the Whitehall Rooms of the Hôtel Métropole, London, on July 17th, Dr. J. Walton Browne, the President, being in the chair. Amongst the large number of guests present was the Right Hon. Austen Chamberlain, M.P., His Majesty's Postmaster-General, who, in replying to the toast of his health, proposed by the President, said he accepted and valued highly the assurance which had been offered to him in the name of the postal medical officers of the loyal support which they would at all times give to the Minister who occupied the position he now held. He was sure that the services which they rendered to that department were highly valued by the various chiefs and they knew how much they owed to the medical officers

and how dependent they were upon their skill, judgment, and tact in many of the questions with which they had to deal. The medical officers, he remarked, did not entirely escape the criticism to which every branch of the service was liable, but he congratulated them that they were in a large degree masters in their own house. He thought that a Postmaster-General who would dare to differ from a medical man would be a very rash person. He would like to see the services of the medical department extended to the smaller districts and would be glad if he could do anything to extend the benefits already rendered by the postal medical officers. He had to depend upon them to see that the generous sick leave arrangements which were allowed to the members of the postal service were not abused. Finally, he concluded by saying that he trusted that his relations with the medical officers would be as cordial in the future as they had been in the past. A long list of toasts concluded with that of "The Association of British Postal Medical Officers," proposed by Mr. P. J. Freyer and responded to by the President who took the opportunity of acknowledging the services rendered to the association by their secretary, Dr. R. R. Giddings. Some capital vocal music enhanced the pleasure of the evening.

THE RETENTION OF LYMPH BY PUBLIC VACCINATORS.

Dr. J. Fletcher Little, medical officer of health of Harrow, has written to the Local Government Board pointing out that in the recent outbreak of small-pox amongst the navvies working at Harrow great difficulty was experienced in getting "contacts" revaccinated on the day of the certification of a case owing to the public vaccinator not being permitted to get a sufficient supply of lymph. The Local Government Board has replied, pointing out that the instructions of the Board in regard to the retention of lymph by public vaccinators were devised to insure the maintenance of a certain standard of potency in the lymph used in public vaccination so that discontent on the part of the public might be avoided through unsuccessful attempts at vaccination by means of State lymph. The Board, however, adds that if a public vaccinator has reason to think that he may be called upon to perform a large number of revaccinations there will be no objection "to his exercising his discretion and retaining for a few days such lymph as he thinks he may require—as, for instance, over Sundays." The public vaccinator will be expected by the Board to observe the instructions as to the manner of keeping the lymph and should also be ready to vaccinate with lymph purchased from other sources if there is any delay in the supply of lymph from the Local Government Board.

THE DISTRIBUTION OF PLAGUE.

As regards the Cape Colony the medical officer of health states that for the week ending June 27th the condition of the various places mentioned below was as follows. At Port Elizabeth 4 cases of plague were discovered during the week—namely, 1 native male and 1 native female (the latter found dead) on June 23rd, 1 European male on the 25th, and 1 coloured male (found dead) on the 27th. At the Plague Hospital 1 native male died, and 2 European males and 1 coloured female were discharged, leaving 6 cases under treatment. Plague-infected rats continue to be found in the town. At East London 1 case of plague was discovered—namely, a native male on June 27th. At the Plague Hospital no patients died or were discharged during the week; 5 cases remain under treatment. At King William's Town no case of plague was discovered during the week. At the Plague Hospital 4 European males and 2 European females were discharged, leaving 5 cases under treatment. Plague-infected rats continued to be found in the town. At Graaff-Reinet no case of plague and no plague-infected rats were discovered during the week. At Burghersdorp plague-infected rodents continued to be found in the town. At Queenstown no case of plague was discovered. Plague-infected rats continued to be found on the railway premises during the week. At Stockenstrom dead rats were found in the vicinity of the Cape police camp at Seymour. At Riversdale a sick cat killed on June 20th proved on bacteriological examination to have been infected with plague. As regards the Mauritius a telegram from the Governor, received at the Colonial Office on July 17th, states that for the week ending July 16th there were 3 cases of plague and 2 deaths from the disease.

THE KASR-EL-AINI HOSPITAL.

THE Egyptian Government has now authorised the following changes on this hospital staff. Dr. F. M. Sandwith, after 20 years' service in Egypt, will retire next month with the rank of consulting physician. H.H. the Khedive has been graciously pleased to appoint him consulting physician to himself and has bestowed upon him the order of the Osmanieh (Commander Third Class). We congratulate Dr. Sandwith on his well-deserved honour. Dr. P. C. E. Tribe will succeed Dr. Sandwith as professor of medicine in the Egyptian Government Medical School and Mr. Llewellyn P. Phillips, at present one of the resident officers, will take Dr. Tribe's place as junior physician. Mr. A. F. MacCallan is now in charge of the ophthalmic wards during Mr. Fischer's absence on leave. This will enable him to study Egyptian eye diseases at the capital before he starts work in the provinces in connexion with Sir Ernest Cassel's gift for the relief of ophthalmia in Egypt.

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE, MADRID, 1903.

A MEETING of the national committee for Great Britain and Ireland was held in the rooms of the Medical Society of London on July 13th, Dr. F. W. Pavy, F.R.S., the president, being in the chair. A report was read in reference to the Madrid Congress, stating that 238 persons had enrolled themselves as members of the Congress from the United Kingdom and that of this number 150 were present in Madrid, of whom several were appointed to honourable offices in various sections of the Congress. It was noticed with regret that certain radical alterations had been made in the constitution of the Congress without any previous consultation with the national committee for Great Britain and Ireland. The second article, for instance, of the general regulations for the last Congress enacted that the Congress shall be composed of "medical men, pharmacists, veterinarians, and other persons practising one of the different branches of medical science ..... and that anyone who holds a professional or scientific title shall be admitted to take part in the Congress on the same terms as members of the medical profession." The admission of a large number of members apart from medical men made the Congress unwieldy in point of size and to a large extent frustrated its objects. It was further reported that much confusion had been caused by the omission of the Congress authorities to communicate the names of the official delegates to the national committee. A full discussion took place upon the report and it was decided to appoint a sub-committee to inquire into the subjects complained of and to suggest the most efficient remedy. It was announced that the next congress would be held at Lisbon in the year 1906. A letter was read from the Medical Society of London suggesting certain alterations in the constitution and duties of the national committee. The letter was referred for consideration to a sub-committee consisting

of the President, the two secretaries (Dr. P. Horton-Smith and Mr. D'Arcy Power), Sir John W. Moore, M.D., ex-President of the Royal College of Physicians of Ireland, Sir Dyce Duckworth, M.D., treasurer of the Royal College of Physicians of London, Dr. W. H. Allchin, ex-President of the Medical Society of London, and Dr. J. F. Sutherland, Deputy Commissioner in Lunacy for Scotland. The meeting adjourned after passing a vote of thanks to the Medical Society of London for the use of the rooms.

THE PRINCE OF WALES AND THE BRITISH MEDICAL ASSOCIATION.

AT the forthcoming annual meeting of the British Medical Association to be held at Swansea, the Prince of Wales having graciously consented to accept the honorary membership of the Association, one of the first duties of the new President, Dr. T. D. Griffiths, will be to propose the following motion:—

> That it be recommended to the annual general meeting that H.R.H. the Prince of Wales be elected an honorary member of the British Medical Association not only for the honour his membership will confer on the Association but for the distinguished services His Royal Highness has rendered to the medical profession.

It will be remembered that the King (who is now the patron of the British Medical Association) was elected as Prince of Wales an honorary member when the Association held its annual meeting at Ipswich in 1900. It is felt to be a happy coincidence that the Heir Apparent should similarly honour the Association on the occasion of its first meeting within the Principality since His Royal Highness was created Prince of Wales.

GUNSHOT WOUND OF THE BRAIN, WITH EIGHT FRAGMENTS OF THE BULLET DISCLOSED BY THE X RAYS.

Professor W. Keen and Dr. W. M. Sweet (both of Philadelphia) have published in the *American Journal of the Medical Sciences* for July the following case of gunshot injury of the brain which affords an excellent illustration of the inadvisability at times of removing a foreign body from the brain and also an example of the probable rebound of a ball from the inner surface of the skull. The patient was a boy, aged 15 years, who on Oct. 4th, 1902, accidentally shot himself with a 0·22 calibre rifle. The bullet, which weighed 30 grains, entered the right side of the forehead half an inch above the point of junction of the middle and external thirds of the eyebrow. Symptoms of collapse immediately followed and the patient complained of numbness of the left leg and foot soon afterwards. He was anæsthetised and several splinters of bone were removed from around the wound in the forehead. A splinter of the bullet weighing five and a half grains was also removed but the wound was not probed. On the day after the accident the patient had a half a dozen very severe epileptiform convulsions which, however, ceased on the administration of chloral and bromides. Paralysis of the left leg was now noticeable and on the third and fourth days it had become complete. After this he began to improve gradually and in three months' time he was able to get about without assistance. Skiagrams were now taken of the skull and the following appearances were met with. In the brain there were one large portion of the bullet and seven other minute fragments of lead, the largest of which were of about the size of a pin's head. Five of these fragments were "scattered through the brain one inch above a line running from the wound of entry to the present position of the bullet." The ball (or major portion of the bullet) itself lay imbedded in the brain two inches below the surface of the skull in the right cerebral hemisphere beneath the ascending parietal convolution "far below the cortical leg centre and just above the lateral ventricle." The bullet had struck the occipital bone and had rebounded back to its present position. Any attempt to remove the ball was thought to be unjustifiable as the operation would have necessarily caused much more injury to the brain than that which was due to the mere presence of the bullet itself. The patient was accordingly sent home with the following advice. First, that he should not study or begin to do much reading or brain work until a year had elapsed from the date of the accident and that he should then study for a year under a tutor so as to avoid the excitement of school life and work; secondly, that he should be allowed a greater degree of exercise as the weakness in his leg improved; and thirdly, that if either of the two following symptoms—viz., persistent severe headache or an epileptiform convulsion—supervened he should be taken back for operation and removal of the ball, as the latter might otherwise act as a dangerous focus of irritation or might give rise to the formation of a cerebral abscess the evacuation of which would be necessary to save life.

PHYSICAL EDUCATION.

THIS exceedingly important and difficult question is now happily receiving some of the attention which it deserves. In view of the prospect of the appointment of a Royal Commission to inquire into the alleged deterioration in physique of the nation (not necessarily, we think, by any means the best way of dealing with the subject) a dinner was, during the course of the week, given at the Athenæum Club by a well-known member of the profession, at which sixteen guests, influential and representative from various points of view, were present. Interesting and suggestive speeches were made by the Bishop of Ripon, Lord Grey, Lord Glenesk, Sir Henry Craik, and others, including members of our profession interested in, and informed on, a matter which may be accurately described as of vital interest to the empire. We trust that this little conference may have good results.

ON "GASTRIC CRISES" ASSOCIATED WITH NERVOUS DISEASES.

AN important communication dealing with gastric and intestinal "crises" arising from nervous diseases is published in the New York *Medical Record* of June 20th by Professor C. A. Ewald of the Royal University, Berlin. The article is based on the study of 89 cases observed by Professor Ewald during the past ten years—viz., 40 cases in hospital practice, 34 cases seen at his polyclinic, and 15 cases occurring in private practice. "Gastric crises" are not the expression of disease of the stomach itself but must be considered as symptoms or reflex signs of certain nervous disorders or of affections of the liver, the kidney, or the gall-bladder. Since Charcot (1868) first reported cases and pointed out the importance of this somewhat rare condition many more cases of gastric crises have come to light. Limiting himself only to those classes of gastric crises which are dependent upon nervous diseases, Professor Ewald points out that most of them occur in cases of tabes dorsalis and usually in the pre-ataxic stage of that disease. In nearly 62 per cent. of these cases a history of syphilis was ascertained. The attacks usually begin with cramps in the epigastrium or over the cardiac area and are attended with nausea and severe vomiting. Among the vomited matters may be small amounts of blood extravasated from the walls of the stomach. Usually, says Professor Ewald, the attack comes on as suddenly as lightning, only to disappear as quickly, "so that a person contorted with pain a few minutes previously can now sit up in bed and enjoy his meal." Some cases of tabes dorsalis develop slowly and insidiously, the initial symptoms consisting of gastric crises which may occur at intervals and during a period of some years. Usually these crises abate

in severity or cease entirely as the typical ataxic symptoms appear. Dyspepsia is seldom present in tabetics who suffer from gastric crises. These crises should be differentiated from those of neurasthenia and hysteria, from the painful vomiting and colic of lead poisoning, and from the pains resulting from gall-stones or renal calculi. "To me it appears most likely," adds Professor Ewald, "that the gastric crises are due to auto-intoxication characterised by the presence of a toxin which has no influence upon normal nerves but which readily produces a state of irritation on the (sensory) nerves whose integrity has been impaired" in tabes dorsalis. No drugs can cut short an attack, though some little relief is obtained by the administration of antipyrin, erythrol tetranitrate, or cerium oxalate. In grave cases morphia has to be given hypodermically to alleviate suffering, but care must be taken that the patient does not become addicted to the morphia habit. Professor Ewald says that the injection of a few drachms of an anæsthetic mixture (cocaine hydrochloride, one and a half grains; sodium chloride, three and a half grains; and water to three and a half ounces) into the intradural space of the spinal cord is attended with relief of pain in severe cases.

THE SUPPLY OF VACCINE LYMPH IN SCOTLAND.

THE memorial which was submitted to Lord Balfour on July 15th deserved a reception different from the one which it encountered. As mentioned in THE LANCET of July 18th, p. 180, it pointed out that the various enactments relative to vaccination in Scotland contained no provision for the supply of glycerinated calf lymph and it therefore asked that the Government should establish in Scotland an institution for the preparation of calf lymph which might be distributed gratuitously to medical practitioners under such regulations as might be considered necessary. No one but an anti-vaccinationist would deny that the request was reasonable. Neither could anyone condemn it as impracticable, because the manufacture of lymph in official laboratories and its gratuitous distribution by the Local Government Board have been practised on a large scale in England for more than two years. Lord Balfour, in his reply, went over the whole ground conscientiously in ample detail, but he gave the deputation no encouragement. His observations might with perfect correctness be summed up in a few words by saying that the memorialists asked for lymph and received a lecture instead. "Memorial inaccurate and misleading," "not a fair way of presenting the case," "no substantial complaint made or proved against the lymph now in Scotland at the present time," "quotations not accurate," and so on, together with some rhodomontade about the risk of destroying the "structure of a system which is giving confidence to the people of Scotland." All these criticisms appear to us to be nothing more than the floundering of a perplexed politician unwilling to disturb the existing order of things and nettled by the discovery that a few medical men have ventured on the policy of Oliver Twist and are actually asking for more—not for themselves personally, be it remembered, but for the community at large. Persons holding public positions must not feel aggrieved if they are judged according to the inferences which may reasonably be drawn from their official utterances and if their treatment of great public questions is viewed by the public broadly and without minute attention to unimportant details. In some respects his lordship's criticisms of the memorial appeared so remarkable that before venturing to comment on them we not only re-read the lengthy account of the proceedings furnished by our own representative who was in attendance, but we also perused the reports of our contemporaries the *Scotsman*, the *Glasgow Herald*, and the *Times*, all four of which were found to be sufficiently in agreement. In brief, then, the memorial asked for a supply of glycerinated calf lymph because it has certain advantages over humanised lymph and arm-to-arm vaccination. It was impossible that any persons could be found who had a better knowledge of every detail of the subject than the memorialists themselves and yet the Secretary of State, without in set terms professing to be an expert in vaccination, told them that no substantial complaint had been made or proved against the lymph which was actually used in Scotland at the present time. This may be an excellent maxim in law and in many of the casual circumstances of daily life, but it is totally inapplicable to a progressive science and art such as medicine or surgery, and if this policy were adopted by men of genius no advancement would be possible. Was there any "substantial complaint made or proved" against attempting a diagnosis in thoracic disease before Laennec invented the stethoscope or in disease of the eye before Helmholz introduced the ophthalmoscope? Was there a "substantial complaint made or proved" against cinchona bark before Pelletier isolated quinine? An infinity of analogies in the mechanical arts will suggest themselves to everybody. Then as to vaccination by public officials. He told the deputation what it already knew very well—that in England the public vaccinators vaccinate 56 per cent. of the children (of course with glycerinated calf lymph), while in Scotland the parochial vaccinators vaccinate only 2 per cent. This was used as an argument against the memorialists, who were informed that they had no cause of complaint because in England, just as in Scotland, the lymph is not supplied to private practitioners. No one in the room could have failed to perceive that this was a mere juggling with words, for in England any parent who may desire it (even a Secretary of State) is entitled to have his child vaccinated gratuitously by the public vaccinator. The memorial did not go so far as this, it did not ask for the appointment of official vaccinators remunerated out of the public rates, it merely asked for a gratuitous supply of lymph. To take only one more instance. Lord Balfour in congratulating his countrymen on the high proportion of the successful vaccination of infants seemed to have overlooked the pressing necessity that exists for encouraging revaccination and conveniently to have forgotten that Baillie Graham had just told him that in a recent epidemic of small-pox[1] the municipality of Glasgow spent £4500 in the purchase of lymph for revaccination, some of which had to be obtained from Paris.

FRACTURE-DISLOCATION OF THE CERVICAL SPINE WITHOUT PARALYSIS.

WE have lately had an opportunity of seeing at St. Thomas's Hospital a very extraordinary case of fracture-dislocation of the cervical spine not associated with paralysis and, in fact, only discoverable by the x rays. The patient, a man, aged 56 years, fell down the stairs in his house a month before admission. He struck the back of his head on the wall at the bottom of the stairs and forced his head forwards, the chin being driven into the sternum. He got up and resumed his work on the next day and continued to work for a fortnight afterwards. He then came under the care of Mr. H. A. Easton who examined him with the x rays and found a fracture of the upper cervical spine. This was so unusual in the absence of symptoms that he sent him to Mr. W. H. Battle. The man complained merely of a stiff neck and of some pains at the back of the head and shoulders. There was no paralysis. The neck was held forwards stiffly and appeared to be thickened. A skiagram showed a fracture through the body of the axis with displacement of the body of that bone and the atlas forwards. The case was shown at a recent meeting of the Clinical Society of London and we

[1] THE LANCET, August 16th, 1902, p. 452.

understand that the subject will be brought forward at an early meeting of the society in October. We hope that this will be done as we have cognisance of other concealed fractures of the spine of somewhat similar character. They are very important from a medico-legal aspect and are not simply clinical curiosities. The high position of the fracture and displacement of the fragments without paralysis make this case unique.

THE NEW SYDENHAM SOCIETY.

WE are requested to remind our readers that the annual meeting (the forty-fifth) of the New Sydenham Society will be held at Swansea next week. It will take place in the board-room of the Higher Grade School on Friday, July 31st, at 9 A.M. Mr. Henry Power, the treasurer, will occupy the chair. Not only the members of the society but all who are interested in its objects are invited to attend.

THE VON PETTENKOFER MEMORIAL FUND.

IT is proposed to erect to the memory of von Pettenkofer a marble statue of double life-size in Munich and towards this object £89 have been collected in Great Britain. The balance of this sum, after deducting £5 for the expenses of printing and postage, has been sent to the Bürgermeister of Munich who, through Dr. Christopher Childs, the honorary secretary and treasurer of the fund, desires to offer his warmest thanks to all those who have assisted in providing a contribution in Great Britain. We are pleased to know that some of our profession have so readily responded to the appeal for contributions towards this fund, but we had hoped that the total sum collected in Great Britain would have exceeded £89.

THE EPILEPTIC COLONY AT CHALFONT ST. PETER, BUCKS.

THE tenth annual report which has just been issued by the National Society for the Employment of Epileptics refers to the administrative and medical aspects of the epileptic colony at Chalfont St. Peter, Bucks, and to the general history of the colony during the year 1902. This institution has accommodation at present for 170 inmates, but the report points out that there is urgent need for the building of additional homes or villas at the colony to meet the increasing demands of cases seeking admission. A special convalescent home has just been erected and completed to receive casualties and sick cases occurring in the colony. The general health and progress of the "colonists" during the year have been eminently satisfactory; in fact, since the summer of 1897—a period of six years—there has been no death at the colony. The occupations and industries in which the inmates are employed include basket-making, laundry- and needle-work (for females only), carpentry, plumbing and painting, tailoring, boot-mending, and farm and garden work. The members of the honorary medical staff state in their report that 72 new patients (48 males and 24 females) were received at the colony during the year and that 36 patients (23 males and 13 females) left or were discharged as improved or partially recovered. With the extension of the colony, both in size and usefulness, the methods available for educating and employing the inmates have also increased. The present report confirms the view put forth in previous reports that the colony system as adopted at Chalfont St. Peter is of especial advantage in the training of young adult epileptics, both male and female. The colony as it now stands comprises 210 acres of farming land, gardens, and orchards, homes, workshops, and other buildings, representing a capital cost of over £40,000. By scrupulous economy in working and by the generous aid of friendly donors its work during the past few years of its existence has been accomplished without incurring debt. Full particulars as to the mode of application for candidates for admission as colonists and all information connected therewith are contained in a pamphlet entitled "Information for Applicants and their Friends," copies of which may be obtained from the secretary, Mr. G. Penn Gaskell, 12, Buckingham-street, Strand, London, W.C., who will also give information regarding intended gifts and bequests to the society.

THE SOILING OF FABRICS BY THE USE OF FLUID DISINFECTANTS.

THE free use of fluid disinfectants in houses in which infectious disease exists, or is suspected to exist, is a universally established practice and there can be no doubt of its value. One unsatisfactory feature, however, in connexion with the use of disinfectants is that some of them, at any rate, are not only greatly deficient as regards their active antiseptic ingredients but they are apt when used freely, and especially the phenol preparations, to leave indelible stains on sheets, blankets, and other fabrics. This is a serious matter to the poor householder whose means are often sadly strained to meet the expenses of a sick room. Stains on blankets and on sheets are very objectionable and present an unsightly and spoiled appearance which considerably discounts the value of the bed-clothing. Furthermore, stains on bed linen, &c., not unnaturally suggest an unpleasant association with infectious disease. It is desirable, we think, that all manufacturers of disinfectants should be compelled to make a statement as to the percentage of the active ingredient contained in their preparations and they should also ascertain that the disinfectant when properly used leaves no stains on fabrics. We have examined a number of preparations which comply with these requirements; they are efficient germicides and do not stain. It is only a matter of careful preparation, especially in the case of the alkaline mixtures, which, however, often contain little else than inert tar compounds. We may also draw attention to the miserably weak liquor of which the sanitary authorities are in the habit of distributing samples; they are often objectionable in appearance and offensive in odour, to say nothing of being practically worthless as germicides. Of course, it is important that a fair price should be paid for a really active fluid which could be diluted by the sanitary officers to a convenient and efficient strength. In this way the officials could not only reduce the strength to the desired limit of 3 per cent. of phenol or its homologues but they could prevent damage to clothes and other articles. It seems to us that all disinfectant preparations should be required by law to conform to a definite antiseptic value.

SUICIDES IN PUBLIC ASYLUMS FOR THE INSANE.

IN the *Journal of Mental Science* for July Dr. H. A. Benham, medical superintendent of the Fishponds Asylum, Bristol, gives an account of his studies of suicides which had occurred during the period 1890 to 1902 in the public asylums of England and Wales. During that period 201 cases of suicide occurred, 126 being males and 75 females. 16 patients committed suicide after effecting their escape and 20 patients did so while out "on trial." As to the means chosen for committing the suicidal act, a little over 50 per cent. of the total number adopted the method of hanging themselves, while 13 per cent. effected the act by cutting their throats. The other methods adopted were as follows in descending order of frequency—viz., drowning, strangulation, injury by railway trains, poisoning, jumping from windows, and suffocation. Of the suicides which actually occurred within the precincts of asylums the act was committed during the day in 79 per cent. of cases and by night in 21 per cent. "Taking the suicides

committed by night," says Dr. Benham, "the smaller number is probably accounted for by the fact that not only is a smaller number of hours in question (some of which are passed in sleep) but also that all the suicidal patients are at that time concentrated in observation dormitories." On no pretence is any suicidal patient allowed at the present day to take anything to bed. Neglect of this precaution had in the past led to many suicides, the means adopted by the would-be suicides varying from a secreted handkerchief for tying round, or stuffing into, the throat to a piece of sharpened iron or tin for cutting the throat. All suicidal patients now sleep in special wards, each of which is specially "staffed." Sharp instruments, such as knives, razors, and scissors, are locked up and are never allowed to come within reach of suicidal patients, all medicines are kept locked up in cupboards in each ward, and the doses prescribed for sick patients are only given out by the charge attendant or his deputy. Nurses in special charge of suicidal patients or while present in the wards are not permitted to wear hat-pins, the uniform cap being fastened with a safety-pin. Finally, the vigilance of the night attendants is tested by a system of electric clocks connected by wire with a recording apparatus which is placed in the medical superintendent's office. In the dormitories the clock is "pegged" every half hour—thus guaranteeing that the attendants are awake—and a record of each "pegging" is automatically registered in the medical superintendent's office. The rooms of attendants are kept locked so that patients cannot obtain any articles from them. In short, the whole system of supervision and care of suicidal patients has been, says Dr. Benham, so highly perfected in asylums that suicides are now very rare events even in our largest public asylums.

Sir William Selby Church, the President of the Royal College of Physicians of London, will deliver the opening lecture of the winter session at the Post-graduate College, West London Hospital, Hammersmith-road, W., early in October.

THE King has approved of the re-appointment of Mr. William Gabriel Rockwood, M.D. Madras, as an unofficial member of the Legislative Council of the Island of Ceylon.

THE ILLNESS AND DEATH OF THE POPE.

(FROM A CORRESPONDENT.)

THE following detailed story of the illness and death of the Pope has been sent to us by a thoroughly well-informed correspondent. The complete accuracy of the public bulletins is supported by his statements:—

On Tuesday, June 30th, the Pope complained of slight feelings of dyspepsia and as he was particularly fond of physicking himself he determined to take a dose of castor oil. This acted rather too strongly during the next two days, but he went on with his usual receptions and with his drives in the gardens of the Vatican, which he had begun rather earlier than usual this year. On Friday, July 3rd, during the afternoon drive, he did not feel at all well and returning to his apartments went to bed where he fell into a prolonged fainting fit. Dr. Lapponi, who has been the Pope's private physician for many years, on being summoned, declared that this was due to the excessive action of the castor oil which had brought on some disturbance of the stomach and, in fact, the Pope would not take any nourishment at all, refusing even a glass of claret which was his usual "pick-me-up." Some anxiety was felt during the night which was apparently passed by the Pope in a state of semi-delirium until the dawn, in spite of a dose of sulphonal (his usual soporific), when after taking a little cordial he felt re-invigorated and calmer.

During the next day, Saturday, the loss of appetite continued and in addition the Pope suffered from shortness of breath, so that the daily receptions had to be postponed. There was, however, no fever. Towards evening symptoms of prostration made their appearance, the pulse being very weak and the action of the heart being barely perceptible. A hypodermic injection of caffeine was given which caused a great deal of pain. Caffeine was also given by the mouth, as was also some nourishment, and a little sleep was obtained. Dr. Lapponi slept in the Vatican. A consultation with Professor Mazzoni was determined on and this took place on the next morning, Sunday, July 5th, at 8.30. The bulletin then issued was as follows:—

> Dr. Lapponi, being anxious concerning the health of the Holy Father, held this morning a consultation with Professor Mazzoni, who confirmed the diagnosis already made by his colleague of "senile pulmonary hepatisation" and approved of the treatment instituted. The condition of the august patient is, considering his age, serious but not for the present alarming.

Professor Mazzoni, it may be remembered, operated on the Pope three years ago for a suppurating cyst in the side with excellent results.[1] He is surgeon to the ancient hospital for women of San Giovanni in Laterano and is a *privat-docent* for gynæcology in the university.

I had an interview with Professor Mazzoni in the evening. He stated that the hepatisation affected the upper and middle lobes of the right lung and that there had been symptoms of considerable cardiac weakness and some difficulty in respiration; there was no fever, cough, or expectoration. At 9 P.M. on Sunday the following bulletin was issued:—

> Since the morning there has been slight increase in the weakness. The objective conditions of the thorax remain unaltered. Respiration somewhat frequent. Pulse weak, but not irregular. Temperature subnormal. Mind most clear.

Notwithstanding his weakness the Pope remained out of bed for a part of the day, dictating letters and making his final dispositions on temporal and spiritual matters. He also dictated some Latin hexameters (and requested his secretary to send them immediately to be printed, as he wished to see the proofs). The first line of these runs:—

> "Sol moritur vespri cedens sua regna rubenti."

They are somewhat melancholy and comprise a farewell to all Christians.

Shortly after this consultation the Viaticum, or Last Sacrament, was administered to the Pope sitting up in his bed in the presence of several cardinals and other members of his family and intimates. During the recitation of the Confession when the words "*Mea culpa, mea culpa, mea maxima culpa*" were reached the Pope extended his hands and struck his breast three times in token of deep sorrow for the sins of his life. Then with astonishing mental clearness he requested the cardinals present, numbering 28 or 29 in all, to approach one by one. He recognised them individually and had a parting word for each. The bulletin issued on Monday morning was as follows:—

> July 6th, 9.30 A.M.—Although there has been hardly any sleep during the night, still it has been less agitated than the preceding one, the Holy Father deriving benefit from the administration of digitalis and camphor. The condition of the thorax remains stationary. There have been some fits of coughing, with a scanty mucous expectoration. Sufficient nourishment has been taken. The pulse remains weak but not intermittent. Temperature subnormal. It may be said that the condition of the august sufferer, while no better, is certainly no worse.

It was stated, but not officially, that caffeine was also given by the mouth during the night. The nourishment consisted of strong soup, eggs, and various stimulants. The bulletin in the evening was as follows:—

> 8 P.M.—This evening the symptoms of general depression are accentuated. Respiration more frequent and superficial. Pulse small, and sometimes imperceptible. Temperature subnormal. Intellectual faculties unimpaired.

After the publication of this bulletin Extreme Unction was administered.

On Tuesday, the 7th, the morning bulletin was as follows:—

> 10 A.M.—A sleepless and agitated night, but nourishment was better taken. General condition somewhat better. A change noticed in the objective examination of the right thorax. The middle lobe, which yesterday was impervious, this morning allows some air to enter. On the other hand, the lower part is duller, vocal and tactile fremitus is absent, and the symptom of Baccelli authorises the opinion that there is fluid in the pleura. An exploratory puncture will be made. There is a depression of the cardiac function, which has caused a delayed renal function, and cyanosis in the distal phalanges of the fingers and toes.

The treatment relied upon was the administration of digitalis, camphor, and expectorants by the mouth, and

[1] THE LANCET, March 11th, 1899, p. 731.

stimulating applications to the skin. Baccelli's symptom consists practically in the old succussio Hippocratis, with this exception—that the patient himself causes the splash of the effused fluid by repeating aloud the words "trenta tre," and it is not to be confused with the other symptom of Baccelli which consists in distinguishing between a serous and a purulent effusion into the pleura by means of the differences heard in auscultation of a whisper in these two conditions.

The operation of paracentesis was performed a little before 1 P.M. After a preliminary cocainisation an exploratory puncture was made in the seventh interspace and the presence of a sero-sanguinolent effusion was ascertained. The needle of the Pravaz syringe was withdrawn and that of a Potain's aspirator was inserted and between 700 and 800 grammes of fluid were withdrawn in 20 minutes. A collodion dressing was then applied. The Pope was much pleased at the painlessness of the operation and complimented Professor Mazzoni, saying that he felt much relieved by it. At 2 P.M. the following bulletin was issued:—

The exploratory puncture gave sero-sanguineous liquid. Thoracocentesis was next performed, withdrawing about 800 grammes of liquid. After the withdrawal a rapid examination revealed mucous râles in the region of the lung first affected. His Holiness supported the operation very well, his *morale* has been improved by it, and the general condition seems better. He is now reposing.

On the same evening at 8.30 the following bulletin was issued:—

The condition continues to be fairly satisfactory, as mentioned in the last bulletin. The functions of the heart and of respiration continue to improve slowly but gradually.

On Wednesday, the 8th, the following bulletin was issued at 10 A.M. after a consultation lasting one and a half hours:—

The night was passed fairly tranquilly though without refreshing sleep. The pulse is frequent but regular, the respiration not so free as yesterday. The condition of the Holy Father does not permit of a long examination but permits of the statement that the pulmonary process is tending to resolution and that the pleural effusion is not being again poured out. The condition of the august patient, however, is not a tranquil one on account of the state of depression, which is increasing. During the night there seems to have been some difficulty in passing the urine, which depressed the Pope very much.

At 7.30 P.M. the following bulletin was issued:—

The day has been passed tranquilly without attacks of weakness. Pulse less frequent, regular, and a little more sustained. Respiration easy. The general condition is better.

Nourishment was taken several times during the day and consisted of meat grated in soup and some spoonfuls of claret, but hardly enough was taken.

On Thursday, the 9th, the following bulletin was issued at 9.35 A.M.:—

The night has been a tranquil one and the august patient has reposed. The pneumonic process is in a state of complete resolution in that part of the lung which is not covered by the small quantity of fluids still remaining in the pleural cavity. The general condition continues to be better.

It was also stated, but not officially, that the cyanosis of the fingers was less and that the lips were of a better colour. The temperature ranged between 36·2° and 36·6° C. According to *La Tribuna*, the official organ, Dr. Guido Baccelli, the Minister of Agriculture in the present Cabinet, who is also professor of medicine in the University of Rome, stated to-day that he "was glad that his studies had been able to contribute to the diagnosis and treatment of the illustrious patient." This refers to the fact that he was the first to suggest the existence of fluid in the pleural cavity.

At the consultation held on the morning of the 9th it was decided to call in at the evening consultation as a physician consultant, Dr. Rossoni, the professor of special demonstrative medical pathology (performing functions almost exactly corresponding to those of a medical registrar), who also takes over the work of Professor Baccelli when his Cabinet duties do not permit him to do it. The Pope, when he was told of this by Dr. Lapponi, said that he was perfectly satisfied with his two medical attendants and asked why he should have a third. Dr. Lapponi explained that he thought it would increase the authoritativeness of the bulletins. The Pope answered that he did not insist and was grateful for their kindly thought. After the consultation was over the Pope became worse and it was decided to hold another consultation at 4.30 P.M. When Professor Rossoni was introduced the Pope, ascertaining that he was a Roman, asked him if he had studied under De Matteis, who had a ward in the Hospital of Santo Spirito and was the foremost exponent of the Roman school of medicine in his happy boyhood which he remembered so well. As this was about the year 1824 Professor Rossoni naturally replied that he did not remember him. The consultation lasted about an hour and after it, at 6 P.M., the following bulletin was issued:—

The general condition of the august patient becoming somewhat worse during the day a consultation was held at 4.30 P.M., at which there was also present Professor Rossoni. An objective examination was made and it was ascertained that the pleural effusion was again rapidly increasing. The sounds of the heart are weak, without symptoms of valvular lesions. Pulse easily compressible, 90. Respiration superficial, infrequent. Diuresis scanty. The condition of His Holiness may be considered as serious.

After the consultation the Pope asked one of his medical attendants: "Do you hope more or fear more?" showing his complete knowledge of his precarious condition.

Dr. Lapponi and Professor Mazzoni visited the Pope again at 10.55 P.M. and found that the general condition was unaltered. During the visit the Pope asked them what Professor Rossoni had said and asked to see the bulletin. To this quite unexpected question the answer was given that the bulletin was only issued in the morning and that it would then be laid before him. This has necessitated the printing of a special bulletin "ad usum Ponteficis."

On Friday, the 10th, when Professor Mazzoni and Professor Rossoni entered the room at 10 A.M. the Pope, who was sitting up, offered the latter his snuff-box and said that he did not feel quite so well, complaining in particular of a heavy feeling at the pit of the stomach. This, it is to be noticed, the Pope had also complained of just before the first operation. He then went back to bed again without any help and the operation was performed after a preliminary hypodermic injection of camphorated oil and hypodermic cocainisation. About 1000 grammes of a sero-sanguinolent fluid were withdrawn in the time of 20 minutes and on hearing the fluid being poured out of the aspirator into another receptacle the Pope said: "What a fountain." A microscopical examination of the fluid was rapidly made and there were found in it "many mononucleated corpuscles, a few multinuclear, many hæmatocytes. The presence of tubercle and of a thoracic tumour was thus to be definitely excluded." At 11 A.M. the following bulletin was issued:—

The august patient passed the first half of the night with a certain amount of tranquillity but afterwards the difficulty of respiration and malaise increased and there was a greater sense of oppression. Pulse small, weak, 92. Complete apyrexia. Scanty diuresis. An increase of the endopleuritic effusion having been ascertained the indication for emptying is definite. A thoracocentesis was immediately performed by Professor Mazzoni. About 1000 grammes of sero-sanguineous fluid were extracted. His Holiness supported very well this, the second, operation. After the operation the respiration and the strength of the heart suddenly improved.

At 9 P.M. the following bulletin was issued:—

His Holiness has reposed during the day without pain. The pulse retains the frequency and the strength of this morning after the thoracocentesis, 92 pulsations. Respiration, 28; temperature, 36·4° C. Diuresis always deficient. General condition unchanged.

On Saturday, the 11th, the bulletin was as follows:—

During the night His Holiness has reposed at intervals. Pulse 90, its strength and compressibility being unchanged from last night. Respiration, 30; temperature, 36° C. Renal function always deficient. General condition somewhat better.

At 8 P.M. the bulletin was as follows:—

The day has been passed fairly tranquilly. The improvement in the general condition has permitted of the repetition of the physical examination of the thorax. The level of the slight amount of fluid remaining from the withdrawal (of fluid) performed yesterday has remained stationary. In the region above this level faint pleuritic friction sounds and a few mucous râles can be heard. Pulse less small and less weak. Pulsations, 86; respiration, 28; temperature, 36·9° C. The *morale* of the august patient is better.

The following bulletin was issued on Sunday, the 12th, at 9 A.M.:—

The night has been passed tranquilly and several hours of sleep have improved the general condition of His Holiness. Pulse less small and a little stronger; pulsations, 82; respirations, 30.

The evening bulletin was as follows:—

Nothing noteworthy in the course of the day. The general condition of His Holiness is unchanged. Pulsations, 86; respiration, 30; temperature, 36·8° C. A good night was passed.

At this point in the illness one of the medical men in attendance considered that a critical period might have arrived though the hope was necessarily very slender. But two days later the increasing weakness became manifest and for the next four days the bulletins bore but one construction—the strength of the patient was slowly failing. The pleuritic fluid, as it collected, was withdrawn by a Pravaz syringe, otherwise medical care was chiefly directed to the administration of nourishment. On Sunday, July 19th, the Pope fell into a condition of stupor, the long death agony being closed on July 20th. A few hours before his death he

recovered consciousness and twice raised his hand in the act of bestowing the blessing.

The Pope was nursed throughout by his faithful valet, Pio Centra, and by Dr. Lapponi. While the windows of his room have only been opened for an occasional ten minutes in the early morning, oxygen has been continually generated in the next room in order to keep the atmosphere purer, vitiated as it necessarily has been by the presence of many people—cardinals, members of the Pope's family, and other intimates.

THE CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

(FROM A SPECIAL CORRESPONDENT.)

THE annual meeting of the Royal Institute of Public Health was held at Liverpool from July 15th to 21st, under the Presidency of the Earl of DERBY.

Those splendid municipal buildings, the St. George's Hall and the Walker Art Gallery, are admirably adapted for the purposes of a congress and were generously placed at the disposal of the institute by the corporation. The sectional meetings were held quite near at the University College buildings, also admirably adapted to the purpose. Some 500 members attended the Congress and inspected with great interest the various municipal enterprises of Liverpool, such as the model dwellings, the sewage and water works, the dust destructors, and all the numerous undertakings which mark the great city as a thoroughly advanced and liberal-minded place. Many neighbouring factories and works, such as, in particular, Messrs. Lever's model village, were open to view and the facilities so afforded were largely made use of. Warm praise must be accorded to Dr. E. W. Hope, the energetic medical officer of health of Liverpool, and the honorary general secretary of the Congress, for the admirable arrangements that were made for the instruction and entertainment of so numerous a company. Excursions to Chester and Eaton Hall, Hawarden Castle, Northwich, and other places of interest were arranged and well patronised, although the wet weather rather marred the general enjoyment.

THE OPENING MEETING.

The opening meeting was held on Wednesday evening, July 15th, in St. George's Hall. Lord DERBY in his inaugural address said that sanitation and the promotion of health were in the mouth of everyone, but he was not sure they were not priding themselves too much upon the advances they had made. He was not sure that on sanitary questions after all they were so much in advance of some nations of antiquity and instanced as examples the Mosaic regulations of camp sanitary administration and the aqueducts and drainage systems of the Romans. As regards personal cleanliness some of the nations of the east in many respects could hardly be surpassed. That insects might convey malaria appeared to have occurred to a Roman writer on agriculture. Contrary to the general opinion, contrary to statistics, he doubted the halo of healthiness thrown over the country as opposed to the towns. No doubt country life appeared to be ideal, but certainly in times gone by life in the best cottages was infinitely inferior to anything in the worst slums of the towns now. In conclusion, he remarked that science must progress through an interchange of ideas and by such congresses as the present one rays of light would surely be thrown where darkness had hitherto reigned. The Harben medals for 1901 and 1902 were then conferred upon Sir Charles Cameron, C.B., and Dr. W. R. Smith, the President of the institute.

The meeting of sections commenced on July 16th.

I.—SECTION OF SANITARY ADMINISTRATION.

Sanitation of Congested Areas and Rehousing the Dispossessed.

Mr. TAYLOR, M.P., the President, in his opening address said that the housing question was one of the most important that the section, or, indeed, the whole Congress, had to deal with. The degree of congestion in cities varied and no longer should money be allowed to be wasted in curing certain plague spots in the centre while the surrounding belt was left to grow up in its own haphazard fashion. He would give municipalities a controlling influence up to a three mile limit outside their boundary. The first duty of a municipality was not to the artisan, but to the poorest poor who were ejected in the general interest.

Dr. JAMES NIVEN, medical officer of health of Manchester, read a paper on Rehousing the Poor on the Outskirts of Large Cities. He said it was generally recognised that an effort should be made by sanitary authorities to house as many as possible of the poorer working classes on the outlying parts of their districts under improved conditions as regards light, air, space, and construction. A great impulse had already been given to this movement by the development of electric trams. Touching municipal undertakings, he said that the main question was, How far could the workmen live from their place of employment?

Dr. SPOTTISWOODE CAMERON, medical officer of health of Leeds, discussed the Methods of Dealing with Unhealthy Areas. He pointed out that the first part of the Act of 1890 was intended specially for those cases where a very large area involved so much slum property that a general reconstruction of the district was necessary, while the second part dealt (1) with individual houses which were insanitary, (2) individual houses which were obstructive, and (3) smaller areas somewhat of the character of those in the first part. In many cases, he said, the removal of an obstructive building would let in air and light into an insanitary district, often with great advantage. Obstructive buildings were of two classes—(*a*) those which were used for habitation and were unfit; and (*b*) those which were either not used for habitation or were themselves fit for such use. The dealing with such obstructive buildings might be initiated by the medical officer of health on his own account or by any four inhabitant householders of the district. The consequent proceedings are a report to the authority as to the circumstances of the building and the cost of pulling it down and acquiring the land. This report it must ask for and must consider when made along with the representation. If it decides to act, copies of both are sent to the owner of the land, giving him an opportunity of stating his objections, after which the authority decides whether the building shall be pulled down. He then proceeded to give examples of the method of procedure.

Dr. R. S. MARSDEN, medical officer of health of Birkenhead, pointed out that the idea of housing the poor far outside the city boundaries and of taking the workmen there in free trams was right in theory but impossible in practice on account of the cost. Municipalities should get control of overcrowded districts and compel the owners to make the houses fit for the new conditions of tenancy. A certain class, those earning small and casual wages amounting, perhaps, to a few shillings a week only, could not be so dealt with; for these it was necessary to establish municipal lodging-houses. He referred to the admirable dwellings of this class designed by Mr. Turton of Liverpool.

Mrs. Councillor DOCKRELL of Blackrock said that she approached the question from the woman's point of view. Tenement houses were detrimental to family life and conducive to quarrels. It was an unfortunate fact that dispossessed persons rarely went into the new houses.

A joint meeting of the Congested Areas and Municipal Hygiene Sections considered the question of water-supply and a paper was contributed by Mr. PARRY, the Liverpool water engineer.

A Garden Village.

An object-lesson in connexion with the Congested Areas Section was given by the visit to Port Sunlight, by kind invitation of Messrs. Lever Brothers. This is a delightful "garden" village, the cottages of which are constructed in a charming and artistic style. Mr. Lever, who conducted the members, said that the village was no wonder at all. The whole question was the number of houses per acre. He thought that the maximum should be ten; if they got 20 the death-rate went up, and so on until they came to 50, when it became a congested area.

II.—SECTION OF PREVENTIVE MEDICINE AND VITAL STATISTICS.

The President of this section was Dr. SPOTTISWOODE CAMERON who in his opening address remarked upon the growing importance of preventive medicine. It was being realised that systematic inspection was far more effectual than waiting for complaints.

The Prevention of Consumption in a Large City.

Dr. NATHAN RAW, physician to the Liverpool Sanatorium for Consumptives, contributed a paper on the

above subject. He pointed out that 2000 people died every year in Liverpool from tuberculosis and said that there were at present between 5000 and 6000 consumptives in the city. He pointed out that the disease was infectious, but only when ordinary sanitary and personal precautions were not observed, and urged that the patient in an advanced stage ought to be separated from other members of the family or removed to some suitable institution. In his opinion consumption was frequently conveyed to children by milk from tuberculous cows. He suggested, as far as Liverpool was concerned, that it would be necessary to appoint a tuberculosis committee under the control of the health department, working in conjunction with the general practitioners and charity organisations in the city. The institutions necessary to carry out this plan would be: (1) a centrally located office at which all consumptives might seek advice and where inquiries might be made by the committee; (2) a municipal sanatorium in some healthy district near Liverpool where the early cases might be treated, the patient to pay according to his means; and (3) a reception hospital for at least 100 incurable patients who could be removed from their surroundings and would no longer act as the most potent agents in distributing the disease. He thought that if a consumption colony could be established in some healthy locality near Liverpool where all poor and needy consumptives could be placed it would do more than anything else to stamp out this disease from the city.

This paper led to an interesting discussion.

Dr. W. G. WILLOUGHBY (Eastbourne) thought that the value of sanatoriums had been over-estimated.

Dr. HOPE disagreed with the last view and considered that compulsory notification could not at present be asked for.

Dr. SMITH (King's College, London) said that compulsory notification began at the wrong end. As regards sanatoriums, considering the number of consumptives the authorities were practically asked to build hospitals for incurables.

Sir CHARLES CAMERON (Dublin) was not convinced that compulsory notification was undesirable. Notification should not be compulsory, however, until it had definitely been decided by bacteriological examination that the case was one of tuberculosis.

Dr. W. J. R. SIMPSON (King's College, London), while doubtful as to the value of hospital treatment, thought highly of the suggestion of establishing colonies. Compulsory notification was the beginning of a serious attempt to grapple with this great national evil.

Dr. RAW, in his reply, said that from the scientific point of view there could be no doubt as to the advisability of compulsory notification, but since 200,000 poor working people suffered from consumption in this country such a course would dislocate a vast amount of domestic life. The disease ought to be put into a category by itself, isolation being needed only in the case of those incurable patients who could not in any way isolate themselves.

Underground Bakehouses.

Dr. T. W. N. BARLOW, medical officer of health of Bootle, read a paper upon the Requirements in regard to Underground Bakehouses. He remarked upon the difficulty in dealing with underground bakehouses and considered that medical officers of health should recommend standard regulations with regard to construction and lighting which might be modified in particular instances.

The Transmissibility of Infectious Diseases during the Incubation Period.

Dr. H. S. WILLSON (King's College, London) read a paper upon this subject. He said that in the vast majority of instances infectious diseases were not transmissible until the actual onset of symptoms, and this view was sufficient as a rule for practical purposes. But the rare exceptions were at least of scientific interest and might be important for preventive medicine. Opinions from various text-books and a few cases were quoted. The speaker then brought forward some bacteriological considerations and showed that diphtheria was undoubtedly infectious during the incubation period. He called attention to the fact that people might harbour the Klebs-Löffler bacillus for a considerable time—many days or even weeks—and eventually develop the disease apart from any fresh infection. He then distinguished between a "potential" and "actual" incubation period in diphtheria. The one might pass into the other and the patient be capable of communicating the disease during the whole period. He also brought forward reasons for believing that typhoid fever was capable of being transmitted apart from any symptoms and during the period of incubation. His conclusion was that as far as present knowledge went those in sanitary authority might neglect the possibility of infection during the incubation period in all diseases except diphtheria and typhoid fever. He urged the importance of provision for proper bacteriological investigation in all cases of suspected diphtheria and also for "contacts," and lastly considered that in the near future the same consideration would have to be given to the early bacteriological investigation of typhoid fever.

In the discussion which followed Dr. MARSDEN brought forward his physical theory that infection was a matter of wave length.

Dr. A. JOHNSTON (Glasgow) did not believe that infection during the incubation period ever occurred.

Dr. J. T. NEECH (Halifax) and Dr. BUTLER HOGAN (Tottenham) mentioned cases of small-pox in which they concluded that infection had occurred in the incubation period.

III.—SECTION OF BACTERIOLOGY AND COMPARATIVE PATHOLOGY.

The Value of Abstract Research to Practical Sanitation.

Professor RUBERT BOYCE, F.R.S., President of the Section, took the above subject for his theme in opening the meeting. He said that in a city like Liverpool where a new university had been created no pains should be spared to make the university not only the best equipped of its kind but also that its great departments should be so organised that they could be readily used by the city corporation, by district authorities, by the Chamber of Commerce, and by commercial firms seeking advice. They wanted on their part the advances which they made in science to be used to the full advantage of the community and in return they required the active support of the community. In Liverpool this inter-dependence had been fully recognised. He pointed out the value of a bacteriological department to the health department of a great city and he said that there existed in addition to the routine checking work a whole field of research in regard to plague, cholera, rabies, purity of water, &c., in which the community was directly interested and to the support of which it was asked to contribute directly. The relationship of bacteriology to the water engineer had also had ample demonstration, for that officer had to recognise that his worst enemy was a pathogenic organism. He now thoroughly recognised the significance of the colon bacillus and it was a remarkable step forward that probably every oyster merchant also realised the importance of freeing the beds from this pest. All this tended to impress on the community the absolute necessity of supporting, and keeping in touch with, scientific progress. It was splendid to see how citizens were coming more and more to the aid of men of science and were endowing cancer and other researches.

Interesting discussions upon the bacterioscopic analysis of water, the nature of the pseudo-diphtheria (Hofmann) bacillus, and the diseases of animals communicable to man followed, and several valuable papers were contributed.

(To be continued.)

MEDICINE AND THE LAW.

The Address of the President of the Medico-Psychological Association.

IN his presidential address to the Medico-Psychological Association Dr. Ernest W. White did not confine himself to any special subject connected with the care and treatment of the insane, but preferred to review the general situation by the light of events and statistics of recent date and to discuss changes and improvements either capable of being introduced by legislation and other means, or already projected. Among innovations with regard to which definite proposals are before the Legislature, the Lunacy Acts Amendment (London) Bill, introduced by Lord Carrington in the House of Lords, is regarded by Dr. White with some disfavour, although the principle which it seeks to introduce naturally commends itself to him. The object of this Bill is, according to its memorandum, to establish in various districts in London under the control of the County Council houses at which persons alleged to be lunatics may be

received for preliminary examination and treatment. There are many defects in the present system whereby persons of unsound mind find their way, after preliminary detention in workhouses and prisons, into large lunatic asylums where the nature and probable duration of their derangement cannot be so well studied with a view to their future treatment as it might be in smaller institutions maintained expressly to that end. The memorandum of the Bill observes with regard to this, "It is claimed for the system proposed that it will be not only beneficial but economical in its operation by tending to lessen the number of persons detained as lunatics in the county asylums at the public expense, while it will be useful in assisting the classification of patients and the diagnosis and cure of mental disease in its earliest stages," and no one will dissent from the view that such a system efficiently worked may some day prove of practical utility. Dr. White, however, regards the proposals of Lord Carrington's Bill as tending to the institution of new hospitals for the insane in central metropolitan districts, and referred to a special report of the County Council, published in 1890, in support of this opinion. In the Bill itself there is little to justify the anxiety he expresses with reference to this, nor with regard to the manner in which he fears that the County Council will carry out the duties which it is now willing to undertake He asks whether there is any guarantee that the superintendent, who will also be resident medical officer, of the proposed receiving houses will have been properly trained in the treatment of mental diseases in a public institution for the insane, and also whether the visiting medical staff to be appointed will have had proper experience gained in public asylums. We hope and think that the London County Council are not likely deliberately to appoint ill-qualified persons to fill important offices of this kind, so that there is no need to anticipate the reverse in an Act of Parliament. Dr. White has a proposal to meet the difficulty of obtaining assistant medical officers at county and borough asylums, where it is known that the higher posts are few in number and that promotion must in consequence be slow and uncertain. He suggests that an assistant medical officer should be able to retire, "say at the end of five years, if he so desires, with a gratuity of £500, or at the end of ten years with one of £1000," and points out that any sum so earned will aid in the purchase of a practice and that the experience gained will mean the dissemination of medical knowledge of mental disease throughout the country. If the authorities of county and borough asylums can see their way to carry out such a suggestion we have no doubt that they will find an increase in the number of candidates ready to come forward for the posts in question. Young medical men gain their qualification by a long and costly course of training and are not likely to disregard positions offering marked pecuniary advantages.

Refuse as a Nuisance.

An injunction was granted by Mr. Justice Joyce on July 15th restraining the Keymer Brick and Tile Company, Limited, from using rough ashes, rubbish, or house refuse as fuel so as to occasion a nuisance to persons in the neighbourhood of their brickfields or so as to be injurious to public health. The defendants purchased what they termed rough ashes, apparently London refuse containing ashes, and brought it by rail to their works, where it was screened, the ashes and breeze being used as fuel. The accumulation of dead dogs and cats and other non-inflammable matter caused the nuisance complained of and one of the witnesses, a gentleman keeping a preparatory school close by, spoke of the numbers of flies which were bred in the decaying matter and stated that he had caught some flies for bacteriological examination, evidence as to the result of which was given. The action was brought by the Attorney-General at the instance of the Chailey rural district council. In the course of his judgment his lordship said that the question was one of fact and not of law and that with regard to the law it was only necessary to say that in law a public nuisance need not necessarily be one injurious to public health. It was enough to show that it was a substantial injury to the comfort of persons within its sphere. He had nothing to do with the question whether the defendants could properly carry on their business in the place where they did so or with the difficulty of disposing of London refuse. He saw no reason to doubt that a serious and disgusting public nuisance had been created.

Coroners and Medical Evidence.

At an inquest held recently at Southend upon the body of a man found upon the beach with his throat cut there was no medical evidence forthcoming. A juror, who felt doubts as to whether the wounds upon the deceased could have been self-inflicted, asked for a medical opinion on the subject. The coroner thereupon expressed the view that none was necessary and the jury, in order to call attention to their dissent, nearly returned a verdict of "Found drowned." Upon this, the inquest was adjourned in order that medical testimony might be obtained, and a few days later a medical man gave evidence to the effect that death was due to the wounds in the throat and that the position and nature of these were consistent with their having been self-inflicted. With regard to the calling of medical evidence at an inquest the jury were clearly within their right in asking for it, for a verdict in all cases should be founded on evidence and on nothing else. The jury in deciding the cause of death are not experts and their "view" of the body is not such an examination as can enable them in any way to exceed their ordinary functions. The coroner has the responsibility of guiding them and helping them properly to appreciate the evidence before them. By the twenty-first section of the Coroners Act, 1887, where medical evidence has been given and the jury are not satisfied with it, they may require the coroner to call in further medical evidence and the coroner is bound to comply with this requisition. The end of the case in question was, however, a curious one, for the jury having no evidence before them pointing conclusively, in their opinion, to suicide, still refused to return a verdict to that effect. Nor did they find that the wounds were the cause of death and leave the method of their infliction open. They appear to have refused to adopt any reasonable course and finally returned a verdict of "Found drowned."

Spreading Infection.

At Clerkenwell on July 15th a man and his wife were prosecuted by the Islington borough council for publicly exposing and placing in a cab two children suffering from diphtheria and the woman was also summoned for exposing herself when suffering from the same complaint. The female defendant had taken the children to the Great Northern Central Hospital, had been told that they were suffering from diphtheria, and had refused the offer of an ambulance to take them to an isolation hospital. The hospital authorities appear to have informed the medical officer of health of the district where they resided, and he having traced them found that the family, including three healthy children and a grandmother, had gone by cab and train to Liverpool-street station where they were waiting on the platform for a train. Here, while the sanitary inspector was absent with the father, the woman and children managed to get into a train and started on their journey. After the railway authorities had had the train stopped the patients were detained at Maldon until they were well. Fines amounting to £5 4s. were imposed. The sanitary authority and the hospital are to be congratulated on their energetic and effective action in this case. It will be observed that the defendants, though able to afford cab and railway fares, were not above seeking medical advice from a hospital.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8677 births and 3894 deaths were registered during the week ending July 18th. The annual rate of mortality in these towns, which had been 14·3, 14·4, and 13·7 per 1000 in the three preceding weeks, further declined last week to 13·5 per 1000. In London the death-rate was 13·0 per 1000, while in the 75 other large towns it averaged 13·7 per 1000. The lowest death-rates in these towns were 5·4 in Bury, 6·3 in Hastings and in West Bromwich, 6·4 in Norwich, 6·6 in Aston Manor, 7·2 in Handsworth, 7·3 in Hornsey, and 7·4 in Croydon and in Willesden; the highest rates were 18·9 in Warrington and in Burnley, 19·1 in Rotherham, 20·1 in Great Yarmouth, 20·6 in Bootle, 20·9 in Rochdale, 21·4 in Middlesbrough, and 22·6 in Wigan. The 3894 deaths in these towns last week included 473 which were referred to the principal infectious diseases, against 429, 436, and 441 in the three preceding weeks; of these 473 deaths 170 resulted from diarrhœa, 95 from measles, 86 from whooping-cough, 49 from diphtheria, 36 from "fever" (principally

enteric), 31 from scarlet fever, and six from small-pox. No death from any of these diseases was registered in Hornsey, Hastings, Bournemouth, Southampton, Reading, Burton-on-Trent, Wolverhampton, West Bromwich, Smethwick, Grimsby, West Hartlepool, Cardiff, or Swansea; while the highest death-rates from the principal infectious diseases were recorded in Coventry, Stockport, Birkenhead, Bootle, Wigan, Burnley, Sheffield, Rotherham, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Coventry, Nottingham, Wigan, Sheffield, Middlesbrough, and Merthyr Tydfil; from scarlet fever in Bootle; from diphtheria in Great Yarmouth; from whooping-cough in Walthamstow, Oldham, and Sheffield; and from diarrhœa in Walsall, Wallasey, Birkenhead, Liverpool, Bootle, Wigan, Bolton, Burnley, Leeds, and Rotherham. The mortality from "fever" showed no marked excess in any of the large towns. Of the six fatal cases of small-pox registered in these towns last week three belonged to Liverpool, two to Gateshead, and one to Manchester. The Metropolitan Asylums hospitals contained 71 small-pox patients on Saturday last, July 18th, against 67, 57, and 77 on the three preceding Saturdays; seven new cases were admitted during last week, against seven, four, and 31 in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 1644, 1646, and 1700 at the end of the three preceding weeks, had further risen to 1710 at the end of last week; 243 new cases were admitted during the week, against 234, 241, and 253 in the three preceding weeks. The deaths referred to the diseases of the respiratory organs in London, which had been 150, 164, and 127 in the three preceding weeks, further declined last week to 115, and were 44 below the number in the corresponding period of last year. The causes of 36, or 0·9 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Leeds, Gateshead, Newcastle-on-Tyne, and in 52 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Salford, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·1, 16·3, and 16·2 per 1000 in the three preceding weeks, further declined to 15·2 per 1000 during the week ending July 18th, but was 1·7 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·3 in Aberdeen and 12·4 in Perth, to 17·6 in Dundee and 18·9 in Paisley. The 497 deaths in these towns included 22 which were referred to diarrhœa, 15 to whooping-cough, 11 to measles, four to diphtheria, three to "fever," and two to scarlet fever, but not one to small-pox. In all, 57 deaths resulted from these principal infectious diseases last week, against 65, 58, and 92 in the three preceding weeks. These 57 deaths were equal to an annual rate of 1·7 per 1000, which was slightly above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 16, 17, and 31 in the three preceding weeks, declined again last week to 22, of which 15 occurred in Glasgow, three in Dundee, and two in Edinburgh. The deaths from whooping-cough, which had been 18 in each of the two preceding weeks, declined to 15 last week, and included six in Glasgow, three in Edinburgh, two in Paisley, and two in Greenock. The fatal cases of measles, which had been 13, six, and 13 in the three preceding weeks, decreased again last week to 11, of which six were registered in Glasgow, three in Edinburgh, and two in Paisley. The four deaths from diphtheria corresponded with the number in each of the three preceding weeks, and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 92, 86, and 90 in the three preceding weeks, declined again last week to 73 but were nine in excess of the number in the corresponding period of last year. The causes of 18, or nearly 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·3, 17·2, and 18·2 per 1000 in the three preceding weeks, declined again to 16·0 per 1000 during the week ending July 18th. During the past four weeks the death-rate has averaged 18·4 per 1000, the rates during the same period being 13·4 in London and 16·4 in Edinburgh. The 116 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 16 from the number in the preceding week and included six which were referred to the principal infectious diseases, against 13, five, and two in the three preceding weeks; of these, two resulted from scarlet fever and one each from small-pox, diphtheria, whooping-cough, and diarrhœa, but not one from either measles or "fever." These six deaths were equal to an annual rate of 0·8 per 1000, the death-rates last week from the principal infectious diseases being 1·5 in London and 1·6 in Edinburgh. The 116 deaths in Dublin last week included 24 of children under one year of age and 29 of persons aged 60 years and upwards; the deaths of infants were considerably in excess of the number recorded in the preceding week, while those of elderly persons showed a slight decline. Four inquest cases and three deaths from violence were registered and 53, or nearly one-half, of the deaths occurred in public institutions. The causes of nine, or nearly 8 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JUNE, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·0 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 5·9, 5·4, and 6·0 per 1000 respectively. The rates were considerably below the average in Paddington, Kensington, Hammersmith, Hampstead, Stoke Newington, and Lambeth; while they showed the largest excess in Fulham, St. Marylebone, Hackney, Finsbury, and Deptford. The prevalence of small-pox during June was slightly greater than that recorded in the preceding month; of the 68 cases notified during the month, 29 belonged to Lambeth, seven to Poplar, five to Wandsworth, four to Stepney, three to St. Pancras, and three to Battersea. The Metropolitan Asylums hospitals contained 57 small-pox patients at the end of last month, against 13, 47, and 60 at the end of the three preceding months; the weekly admissions averaged 12, against three, 12, and 13 in the three preceding months. The prevalence of scarlet fever showed a slight decline last month; among the various metropolitan boroughs this disease was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, the City of London, Deptford, and Woolwich. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1704, 1685, and 1738 at the end of the three preceding months, had further declined to 1614 at the end of last month; the weekly admissions averaged 195, against 208, 201, and 226 in the three preceding months. The prevalence of diphtheria showed no appreciable variation from that recorded in the preceding month; this disease was proportionally most prevalent in Fulham, St. Pancras, Hackney, Finsbury, and Deptford. There were 781 cases of diphtheria under treatment in the Metropolitan Asylums hospitals at the end of last month, against 903, 760, and 808 at the end of the three preceding months; the weekly admissions averaged 99, against 126, 105, and 120 in the three preceding months. The prevalence of enteric fever showed a continued increase last month; among the various metropolitan boroughs the greatest proportional prevalence of this disease occurred in Fulham, Hackney, Holborn, Poplar, Deptford, and Lewisham. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 92, 53, and 51 at the end of the three preceding months, had risen again to 88 at the end of last month; the weekly admissions averaged 17, against 15, 5, and 10 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, St. Pancras, Hackney, Holborn, Stepney, and Bermondsey. The 27 cases of puerperal fever notified during the month included four in Fulham, three in Wandsworth, three in Greenwich, and two each in Islington, Stepney, Bermondsey, Deptford, and Lewisham.

The mortality statistics in the table relate to the deaths

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1903.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.													
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
LONDON	4,613,812	68	1208	724	—	157	2	27	468	—	2654	6·0	1	244	26	59	138	—	12	—	119	599	1·4	5705	12·9	91
West Districts.																									
Paddington	146,032	—	32	9	—	1	1	—	18	—	61	4·4	—	8	—	—	4	—	—	—	3	15	1·1	140	10·0	69
Kensington	178,409	—	30	27	—	3	1	—	17	—	78	4·6	—	1	3	5	3	—	1	—	1	14	0·8	199	11·6	62
Hammersmith	115,803	2	19	10	—	5	—	—	12	—	48	4·3	—	—	—	1	4	—	1	—	6	12	1·1	141	12·7	107
Fulham	147,780	1	38	37	—	22	—	4	14	—	116	8·2	—	1	1	2	2	—	—	—	9	15	1·1	155	10·9	76
Chelsea	74,169	1	12	18	—	1	—	1	6	—	39	5·5	—	—	—	—	4	—	—	—	—	4	0·6	101	14·2	106
City of Westminster	179,052	1	59	15	—	2	—	—	12	—	89	5·2	—	3	2	—	3	—	—	—	1	9	0·5	206	12·0	77
North Districts.																									
St. Marylebone	131,234	—	47	12	—	5	—	1	26	—	91	7·2	—	3	1	1	3	—	—	—	6	14	1·1	172	13·7	67
Hampstead	85,197	—	18	7	—	3	—	—	2	—	30	3·7	—	—	—	1	—	—	—	—	1	2	0·2	53	6·5	41
St. Pancras	235,716	3	59	49	—	3	—	1	34	—	149	6·6	—	41	—	2	5	—	1	—	2	51	2·3	332	14·7	103
Islington	339,137	1	90	59	—	5	—	2	23	—	180	5·5	—	30	1	4	10	—	—	—	7	52	1·6	450	13·8	104
Stoke Newington	52,069	2	12	5	—	2	—	—	2	—	23	4·6	—	—	—	—	3	—	1	—	1	5	1·0	52	10·4	57
Hackney	224,082	—	89	47	—	38	—	1	37	—	212	9·9	—	25	2	6	3	—	4	—	6	46	2·1	256	11·9	85
Central Districts.																									
Holborn	57,845	—	12	8	—	3	—	1	10	—	34	6·1	—	3	—	1	3	—	—	—	4	11	2·0	103	18·6	74
Finsbury	99,717	—	44	21	—	1	—	—	9	—	75	7·8	—	14	—	2	7	—	—	—	5	28	2·9	165	17·3	97
City of London	24,539	—	12	1	—	—	—	—	—	—	13	5·5	—	1	—	—	—	—	—	—	—	1	0·4	20	8·5	28
East Districts.																									
Shoreditch	117,513	—	28	13	—	3	—	—	11	—	55	4·9	—	16	—	2	1	—	—	—	4	23	2·0	163	14·5	132
Bethnal Green	130,028	—	31	22	—	1	—	—	16	—	70	5·6	—	14	—	1	4	—	—	—	2	21	1·7	207	16·6	103
Stepney	302,153	4	52	32	—	9	—	2	46	—	145	5·0	—	20	1	2	10	—	—	—	9	42	1·4	429	14·8	87
Poplar	169,560	7	32	34	—	9	—	—	18	—	100	6·2	—	10	1	5	6	—	2	—	10	34	2·1	221	13·6	131
South Districts.																									
Southwark	207,369	2	61	21	—	6	—	1	16	—	107	5·4	—	7	4	—	5	—	2	—	3	21	1·1	291	14·6	88
Bermondsey	129,801	—	35	11	—	2	—	2	29	—	79	6·3	—	4	1	—	10	—	—	—	7	22	1·8	222	17·8	138
Lambeth	307,711	29	60	22	—	3	—	1	27	—	142	4·8	1	9	—	—	9	—	—	—	6	25	0·8	379	12·8	84
Battersea	173,422	3	46	27	—	3	—	—	11	—	90	5·4	—	12	2	1	8	—	—	—	2	25	1·5	201	12·1	109
Wandsworth	249,678	5	67	37	—	6	—	3	12	—	130	5·4	—	8	2	2	8	—	—	—	3	23	1·0	239	10·0	66
Camberwell	265,562	1	53	40	—	6	—	—	34	—	134	5·3	—	1	—	4	12	—	—	—	7	24	0·9	281	11·0	105
Deptford	112,537	2	62	31	—	5	—	2	7	—	159	14·7	—	6	3	10	5	—	—	—	6	30	2·8	148	13·7	94
Greenwich	99,824	2	19	20	—	1	—	3	7	—	52	5·4	—	—	—	3	3	—	—	—	1	7	0·7	95	9·9	78
Lewisham	136,405	—	41	23	—	6	—	2	10	—	82	6·3	—	3	2	3	2	—	—	—	4	14	1·1	135	10·3	67
Woolwich	121,478	2	47	16	—	3	—	—	2	—	70	6·0	—	4	—	1	1	—	—	—	3	9	0·8	149	12·8	66
Port of London	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup

of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending July 4th the deaths of 5705 persons belonging to London were registered, equal to an annual rate of 12·9 per 1000, against 15·9, 15·8, and 14·2 per 1000 in the three preceding months. The lowest death-rates in London last month were 6·5 in Hampstead, 8·5 in the City of London, 9·9 in Greenwich, 10·0 in Paddington and in Wandsworth, 10·3 in Lewisham, and 10·4 in Stoke Newington; the highest death-rates were 14·7 in St. Pancras, 14·8 in Stepney, 16·6 in Bethnal Green, 17·3 in Finsbury, 17·8 in Bermondsey, and 18·6 in Holborn. The 5705 deaths from all causes included 599 which were referred to the principal infectious diseases; of these, one resulted from small-pox, 244 from measles, 26 from scarlet fever, 59 from diphtheria, 138 from whooping-cough, 12 from enteric fever, and 119 from diarrhœa, but not one from typhus or from simple continued fever. The lowest death-rates last month from these infectious diseases were recorded in Kensington, Chelsea, City of Westminster, Hampstead, the City of London, Lambeth, Greenwich, and Woolwich; and the highest rates in St. Pancras, Hackney, Holborn, Finsbury, Shoreditch, Poplar, and Deptford. The fatal case of small-pox belonged to Lambeth. The 244 deaths from measles were 84 below the corrected average; among the various metropolitan boroughs this disease was proportionally most fatal in St. Pancras, Islington, Hackney, Finsbury, Shoreditch, and Bethnal Green. The 26 fatal cases of scarlet fever showed a decline of 50 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Kensington, City of Westminster, Southwark, Battersea, Deptford, and Lewisham. The 59 deaths from diphtheria were 106 below the corrected average number; among the various metropolitan boroughs the greatest proportional mortality from this disease was recorded in Kensington, Hackney, Poplar, Deptford, and Greenwich. The 138 fatal cases of whooping-cough showed a decline of 60 from the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Chelsea, Finsbury, Bermondsey, Battersea, Camberwell, and Deptford. The 12 deaths referred to enteric fever were only one-third of the corrected average number; of these 12 deaths, four belonged to Hackney, two to Poplar, two to Southwark, and one each to Kensington, Hammersmith, Hampstead, and Stoke Newington. The 119 fatal cases of diarrhœa were 42 below the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Holborn, Finsbury, Poplar, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was more than 39 per cent. below the average.

Infant mortality in London during June, measured by the proportion of deaths among infants under one year of age to registered births, was equal to 91 per 1000. The lowest rates of infant mortality were recorded in Kensington, Hampstead, Stoke Newington, the City of London, Wandsworth, and Woolwich, and the highest rates in Hammersmith, Chelsea, Islington, Shoreditch, Poplar, Bermondsey, Battersea, and Camberwell.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon R. H. Nicholson to the *Albion*. Staff Surgeon F. H. A. Clayton to the *Cressy*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant F. L. Henderson, from the Seconded List, to be Lieutenant. Dated July 7th, 1903. Lieutenant-Colonel H. J. Barnes is placed on temporary half-pay on account of ill-health. Dated July 18th, 1903.

Lieutenant-Colonel F. J. Jencken is appointed to the medical charge of the Detention Hospital at Longmoor, Woolmer Forest. Major H. P. G. Elkington is appointed Chief Sanitary Officer at Aldershot. Major R. Caldwell joins at Aldershot and is appointed to the Connaught Hospital for duty.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotion made by the Government of India:—*Bengal Establishment:* To be Colonel: Lieutenant-Colonel Samuel Browne, C.I.E. Dated April 10th, 1903. The King has also approved of the retirement from the service of the undermentioned officers:—Colonel Arthur Mudge Branfoot, C.I.E., Madras Establishment (dated May 19th, 1903); Colonel William Edward Johnson, Madras Establishment (dated June 30th, 1903); Lieutenant-Colonel Denis Peter Macdonald, Bengal Establishment (dated July 6th, 1903); Lieutenant-Colonel Albert William Denis Leahy, Bengal Establishment (dated June 5th, 1903); and Major William Grant Thorold, Bengal Establishment (dated April 15th, 1903).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Lieutenant E. U. Bartholomew to be Captain. Dated June 18th, 1903.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers):—3rd Lancashire: Alan Young Greenwood to be Surgeon-Lieutenant. Dated July 18th, 1903.

Rifle: 1st Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment): Thomas Sprot Allan to be Surgeon-Lieutenant. Dated July 18th, 1903. 21st Middlesex: Surgeon-Captain E. Jones resigns his commission. Dated July 18th, 1903. 3rd London: Surgeon-Lieutenant G. W. O'F. Clark to be Surgeon-Captain. Dated July 18th, 1903.

THE COMMEMORATION OF THE KING'S BIRTHDAY.

The editor of the *Household Brigade Magazine* is entitled to great credit for the special number[1] which has been issued in commemoration of the birthday of King Edward VII. This journal is ordinarily published for the benefit of the non-commissioned officers and men of the Household Brigade, but the special number appeals not only to the army but to every loyal subject of the King. It consists of some 80 pages of letterpress and illustrations bound in an artistic cover and contains as a supplement a very good reproduction of an autograph portrait of His Majesty. Among other illustrations will be found reproductions of portraits of Prince Edward of Saxe-Weimar, Lord Chelmsford, Lord Wolseley, the Duke of Cambridge, the Duke of Connaught, and Lord Roberts, each of which is accompanied by a letter and autograph. Sir Henry Irving, of whom there is also a portrait, writes an appreciative article on "Mr. Atkins and the Stage," but the eminent actor finds that military discipline occasionally conflicts with the conditions of the drama, for the soldier on the stage never looks surprised, and "when the principal actors are in a scene of great emotion it is a little disconcerting to be surrounded by impassive faces which seem to say to the audience 'Don't mind 'em, they often take on like this, but we're used to it.'" "Our Kings at the age of Sixty-one," "The Cemeteries of the English Guards at Bayonne," "Football in the Army," "Boxing in the Army," and "Soldiers who Race," are some of the titles of the other articles. Of special interest to medical readers is the article on the Army Medical Service from a Civilian Standpoint from the pen of Dr. H. H. Tooth, C.M.G., the burden of which is that the Army Medical Service "is a highly honourable calling, offering opportunities for distinction and honours, and combining in a sense the advantages of two professions." Mr. Rudyard Kipling and Sir A. Conan Doyle both contribute autograph letters, and that excellent cartoonist "F. C. G." sends a fancy portrait of Lord Roberts in the character of St. George, Mr. Kruger as a tortoise taking the place of the dragon.

THE LATE DEBATE ON THE ARMY ESTIMATES.

The late discussion of the Army Estimates in the House of Commons was of a somewhat heated nature. Although much of it was discursive almost to irrelevancy and some of it, as might have been expected, rather abusive, Mr. Brodrick was not unequal to the occasion and some important business was done. There was little or nothing of medical interest, however, in the discussion. The War Minister took on the whole an optimistic view of things and claimed patience and fair consideration for his new Reorganisation Scheme. It would

[1] The Household Brigade Magazine. Special number, June 26th, 1903. Price 2s. 6d. Published by Messrs. Kelliher and Co., Limited, 99, Victoria-street, S.W., and 33, King William-street, E.C.

be premature, however, to proffer any opinion on this scheme until we know whether the requisite number of recruits, and of the right stamp, will be forthcoming. In one important matter a compromise has been arrived at. There is to be a permanent South African contingent, which will practically amount to an army corps, maintained in that country. There is no doubt much to be said in favour of this measure on the score of training and military efficiency. The climate is naturally a fine and healthy one, but a great deal will have to be done in the way of accommodation for the troops and sanitation, as well as sanitary administration, in order to keep them healthy and effective.

PRINCESS LOUISE HOSPITAL, ALTON, HANTS.

Princess Louise (Duchess of Argyll) accompanied by the Duke of Argyll and Lord Roberts, visited the Princess Louise Hospital at Alton, Hants, on July 16th. The hospital, which was erected partly by public subscription and partly through the generosity of the proprietors of the *Daily Mail*, consists of three blocks of ten wards which are 55 feet long by 20 feet wide and contain beds for ten patients. During the course of luncheon the Duke of Argyll remarked that the hospital was another instance of the intense patriotism that always pervaded the British press. He thought that the patriotism of the British press might do one more thing and that was to give a prize for the best equipped ambulance and carrier for service in the field. Subsequently Princess Louise presented to nurses of the hospital staff the King and Queen's medal for South Africa and Her Royal Highness was afterwards conducted over the hospital buildings by Lieutenant-Colonel Rainsford, R.A.M.C. Lord Roberts expressed great satisfaction with the arrangements of the hospital.

GIBRALTAR: ITS SANITATION AND ITS NEW WATER-SUPPLY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

AFTER the International Congress of Hygiene and Demography held at Madrid in 1898 I was able to visit Gibraltar and I described the improvements that had then been effected. Formerly Gibraltar was anything but a healthy town. The climate is not good and the sanitation was worse. Thus for the 16 years terminating in 1866 the average annual death-rate amounted to 29·25 per 1000 of the population, but during that year all Europe was alarmed by a serious epidemic of cholera and from that time energetic efforts have been made to deal with sanitary matters. As usual, these endeavours have been rewarded by a notable decrease in the death-rate, the average annual death-rate for the ten years ending in 1901 amounting to only 20·65 per 1000. During the last two years, however, these conditions have not been maintained. In 1901 the death-rate was 22·54 per 1000 and in 1902 it reached the high figure of 23·10 per 1000. This is attributed to the exceptionally unfavourable climatic conditions, the greatest number of deaths taking place during the worst months of the year—namely, in February and March. Then there was also a bad epidemic of measles, so that the zymotic death-rate rose to the very high proportion of 4·66 per 1000 of the population. Undoubtedly this prevalence of zymotic diseases was mainly caused by the principal remaining sanitary defect of Gibraltar. This defect, as I explained five years ago, is in a great measure due to special local, military, and political reasons. Gibraltar is so situated that it might easily become an important commercial centre. Theoretically it is only a fortress, and even to-day its fixed civilian population does not amount to more than 17,373 British subjects and 2982 resident aliens. Between the commercial instincts and interests of the civil population and the purely military purpose of the military authorities there are always conflicts, resulting in a sort of half-hearted and compromising policy which of course fails to satisfy either party. The civilians want to raise the height of their houses and to build over all the available ground, but such structures would mask the batteries and be in the line of fire so they are forbidden, and therefore the houses remain low and small. On the other hand, the commercial enterprise of the place and the openings for trade attract many persons of all conditions, from the poor Spanish labourer to the wealthy Levantine merchant. As Gibraltar is a fortress and not an ordinary colony the right of residence can be refused to foreigners and it is only in exceptional circumstances that permission is granted. But British subjects cannot be excluded. It takes, however, but a short time to reach the Spanish lines on foot and costs only a few pence to go to Algeciras by steamer; therefore several thousand workmen and labourers cross every day to Gibraltar and yet do not live there. But the native-born workmen and workmen from Malta, being British subjects, cannot be sent across the Spanish lines every evening and they have a right to remain in Gibraltar and claim to be housed there. This it is that causes the main difficulty. The overcrowding problem, acute everywhere, is particularly complicated at Gibraltar, for it can readily be imagined that in the event of another siege the smaller the number of private houses and of the civil population the easier it would be to defend the place; therefore the military authorities endeavour to keep the population down and to prevent the building of more houses. As, however, it is easier to forbid the erection of a new house or the enlargement of an old one than to prevent the increase of population the overcrowding of such dwellings as exist is the natural consequence. Therefore when measles or other infectious diseases occur they spread rapidly amid the over-populated and poorer districts.

Putting aside the question of overcrowding as a grievance for which no remedy has been found—and one that increases rather than decreases—it may fairly be said that in most other respects there has been a marked improvement. The general health of the population therefore has greatly benefited and this is especially remarkable in respect of that peculiar local fever for which Gibraltar had acquired an unenviable notoriety. This sort of remittent fever, which sometimes produces a temperature of 105° F. and has often been described by Dr. W. Turner of the Civil Hospital, had almost become extinct. He considers that, speaking roughly, its frequency must have decreased during the last 20 years in the proportion of about 90 per cent. Formerly Dr. Turner used to attend about 60 cases of "Rock fever" during the course of the year and now he does not see more than three cases or so in the 12 months. This marked improvement he attributes to better sanitation, to the prolongation of the main sewer to Europa Point, to better house drainage, to the care taken in re-arranging, trapping, and ventilating the house drains, to the better paving and scavenging of the streets, to the great improvement in the water-supply, and to the more strict supervision of the food- and the milk-supplies.

The most remarkable of the great works undertaken of late years is that of the water-supply. Formerly the inhabitants gathered what water they could from the roofs of the houses and kept it in tanks below the houses; they also had private wells, though this latter supply was often brackish. Of course there was every danger that such water would be contaminated. On the slope of the rock a catchment area measuring some 21 acres had been marked off and reservoir tanks were constructed near the remains of the old Moorish castle which had a storage capacity of 1,257,444 gallons. This water was sold to the inhabitants at the rate of ten gallons a penny, but during the dry season the supply was exhausted and was replaced by distilled sea water which was sold at five gallons a penny. So unsatisfactory was this state of affairs that on the occasion of my last visit in 1898 a plan had been adopted for covering the catchment area with concrete so that none of the water should be lost and for tunneling into the rock so as to construct therein huge reservoirs capable of storing 5,000,000 gallons of water. This great work has been completed and a still greater undertaking is now in hand.

The necessity of large reservoirs for the storage of water is caused by the nature of the climate. The average annual rainfall is 33·3 inches, but it varies from a maximum of 77 inches to a minimum of 15 inches, so that it is necessary to store water from one year for the following year. Consequently in July, 1898, miners set to work to scoop out of the solid rock four great reservoirs identical in size and situated side by side. The work was soon accomplished and on my return to Gibraltar this year I was able to visit these very remarkable reservoirs. After ascending the rock for some 300 feet the author of this bold scheme, Mr. W. Wallace Copeland, C.E., the secretary and engineer of the Gibraltar sanitary board, led me through a very unpretentious doorway into a small building where four gauges on the wall indicated how much water there was in each of the reservoirs. Here also were the engines and air-condensing machines that provide the power required for drilling into the rock.

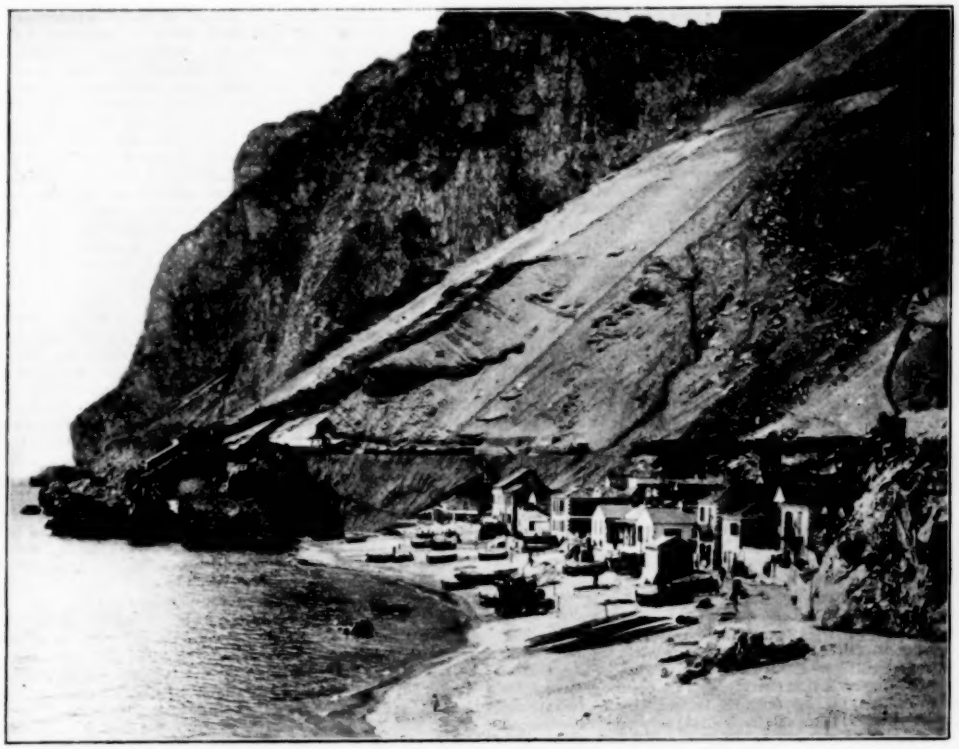
To visit the reservoirs there are a small entrance and ladders to descend. These reservoirs are at their lowest part 340 feet above the sea, they are 201 feet long, 51 feet deep, and their average width is 22 feet. Of course it is pitch dark, but there is a system for conveying electric wires to the farthest extremity so that the whole can be illuminated and a strangely weird effect is produced. The reservoir which we first visited contained 30 feet of water and a small collapsible boat provided us with the means of rowing round this lake which has been built within the rock. The next reservoir visited was quite empty and it was a long climb down the ladders to get to the bottom and thus to realise the great depth and length of the space necessary to hold one and a quarter million gallons of water. It is easy to talk in millions but very difficult to grasp and really to understand what a million means. Here, in any case, we have an object-les-on and can measure with the eye the cubic capacity of more than a million gallons. Yet to let out this vast volume of water a pipe only four and a half inches in diameter is used. The pipe that lets the water in is at least a foot in diameter, for when it rains the water comes down quickly. As it enters from the top of the reservoir it would make a waterfall that would soon damage and disintegrate the stone, so the pipe is prolonged to the bottom and is there curved round, forming a syphon. Thus the water falls on water and comes out with an upward current that presses against water and not against the walls or other hard substance. In this manner there is no shock. Nevertheless it is necessary to have a portable boat that can be taken to any of the tanks so as to watch the walls and to repair them when the damage is on a level with the water, otherwise it would be necessary to construct a scaffold within the tanks.

The gathering grounds which feed these reservoirs are carefully hedged round with barbed wire to prevent goats and other animals getting in. At the same time there is nothing to attract them. Not only has all trace of earth been removed but every crevice or fissure in the rock has been filled up with cement to prevent any lodgment of seeds or growth of any sort. Thus there is, as it were, a bald patch on the surface of the great rock and this constitutes a perfect gathering ground for pure rain-water. At the lowest extremity there is a trench to collect the water which sometimes comes down with such violence that it has been found necessary to build a wall to prevent it from splashing over. At the lower end of this trench stones closely packed have been introduced so as to act as a sort of clarifying filter, but when there is a great downpour the water is likely to leap over these pebbles. This does not matter, for it is only the first downpour of water which has washed the bare surface of the rock that needs a little clarifying. In practice the water when it reaches the reservoirs is very clear. The only thing which it has been found impossible to exclude is an occcasional olive leaf; these are so light that they float over every impediment. After passing through, and sometimes over, the pebbles the water from the gathering grounds enters a large iron pipe that passes over, and in front of, the reservoirs. Branch pipes and valves control the distribution of this water so that it may be discharged into one or more of the reservoirs. Thus the water in one reservoir may be kept quiet and untouched for some months, while another reservoir may be emptied completely so as to be cleaned out. The great object is to keep the water as it is kept by nature—that is, far away from the fluctuations of temperature or light. Even those parts of the reservoirs which are nearest are more than 50 feet away from the surface of the rock. Thus the water is not only stored well away from the effect of light and heat but it is quite safe in case of bombardment. After remaining for 12 months in one of these reservoirs the water was found to be unaltered. There was a little slime at the bottom but no animal life. Nevertheless, after drawing the water from these reservoirs and before it is allowed to flow into the distributing tank it is filtered. For this purpose there is a bed five feet deep packed with sand and polarite. When the water has passed through this filtering medium it is aerated by falling in a spray over a ledge to a depth of 40 feet. After this filtering and aerating process the water is invariably found to be perfect. Even then, the water is systematically analysed every month and after every downfall of rain. Mr. G. A. Albrines, F.C.S., M.S.P.A., is intrusted with the work of analysis. When the great reservoirs are closed in an air channel has to be provided so that air may pass in or out as the reservoirs fill or empty, but to prevent any contamination several air screens and one asbestos air filter have been placed in each of these air shafts. Thus neither dust nor flies can be drawn into the water reservoirs. Then their position, high up and within the bare rock and at a considerable distance from any dwellings, is exceptionally favourable. Indeed, these four lakes, artificially and promptly made right in the centre of the rocky mountain, are really marvellous and have an air of mystery about them that is most facinating. There are the small cave-like entrances leading to the vast deep lakes within, while without and around we have the exquisite but neglected beauty of innumerable wild flowers that wave gracefully over the surface of the majestic rocks. Below stretches the broad expanse of the blue waters, bounded on one side by the green hills of Algeciras and on the other by the towering form of Gibal Moussa which, like a natural fortress, frowns from the northern shores of Africa. Here on this rock side, but well away from the scorching rays of the sun and safe from shot and shell, can be stored 5,000,000 gallons of water. Thus when the supply is abundant some can be kept over for the next year when there may be a drought and can thus be stored in a manner which will prevent deterioration. Such was the scheme conceived some six years ago and now fully realised. It was at first thought that this supply would suffice, and so it would if it were used for drinking purposes only. For sanitary purposes—the flushing of drains and the watering of streets—there is another supply. This is obtained from the sandy plain at the foot of the perpendicular portion of the rock known as the North Front. With the aid of Worthington's condensing engines this water is pumped up to the waterworks near the Moorish tower into tanks that are 250 above the sea. This is known as the sanitary water and by gravitation it flows to all the houses. It is a brackish water so there is no danger of anyone drinking it. The amount of salt it contains varies according to the season of the year and when at its worst it contains 800 grains of salt to the gallon. The sea water at Gibraltar contains more than 2000 grains of salt per gallon. The sanitary water, though salt, is free from all deleterious organic matter and can be used for bathing purposes.

Now that the public water-supply has been so largely augmented the dangerous private wells sunk in the red sand on which the town is built have been closed. The authorities here possess absolute powers which do not exist in England and therefore were not only able to close the old supplies but to regulate the quantity that the inhabitants must take of the new supply. Thus they are compelled by law to take ten gallons of sanitary water per day for each person so that there shall be sufficient to flush the drain-pipes satisfactorily and to keep the habitations thoroughly clean. By combining the use of brackish water with that of pure water and building reservoirs for 5,000,000 gallons of drinking water it was supposed that means had been found to cope with the irregularities of the rainfall and that the problem of the water-supply was solved. But in this calculation no account was taken of the new dock works and the probable demands of local industries. As soon as the authorities found that they had more water at their disposal they also discovered that they could sell it advantageously. All persons who had engines were willing to pay for the drinking water instead of using brackish water for their boilers. This applied not only to steamships but to the great number of engines employed at the new dock works. Then there were mineral water manufacturers and others who all wanted pure water. Thus, instead of reserving water in case of drought the authorities found that they had sold far beyond the very last drop of the maximum supply and that they would be obliged to make up the difference by distilling salt water; indeed, they calculated that the demand for pure water has increased eight-fold within the last few years.

To meet these new and unforeseen exigencies another appeal was made to the inventive genius of Mr. Copeland. The result has been a proposal which for its bold daring is only equalled by the readiness with which it was approved, adopted, and put into execution by the authorities. In England or, for the matter of that, in France and in most countries such a proposal would have been debated for years before a single step was taken towards its execution. The back or east side of the rock is so precipitous that there are only two places where a landing can be effected. A good road from the North Front leads to the first of these, known as Catalan Bay, but there is only a path over the sands to the next, called Sandy Bay, and it is

not possible to go any further. At Catalan Bay there is a small fishing village and above in the rock there is much quarrying work done to supply the stones for building the new docks. But on the further side of the village there is a sort of indenture or scooping out of the lower portion of the rock which is filled up with beautiful soft sand. This sand presents a smooth though somewhat moveable and unstable surface. Now Mr. Copeland conceived the idea of laying over this sandy surface a wooden framework and affixing to it a corrugated iron roofing. This would constitute a perfect gathering ground far above any habitation and on which no vegetation could grow. Then to bring the water to Gibraltar he proposed to pierce a tunnel right through the rock. Nor would this be such an extravagant process as it might seem at first sight, for the tunnel might be utilised not only for conveying the water but also as an extra reservoir. The tunnel would be 2025 feet long and would measure 10 feet in height and seven feet in width. But the porosity of the rock. The drilling machines are worked with air compressed to 80 pounds to the square inch and its expansion in the tunnel helps to cool and to renew the atmosphere. If steam instead of compressed air were employed this would be injurious. But the dynamite explosions which have to be produced so as to shatter the rock create very poisonous gases which cause the men to vomit and their lives can only be saved by prompt removal to the outer air. Therefore iron pipes or shafts are put down in the tunnels and carried close to where the explosions take place. At the mouth of the tunnel an oil engine causes a Blackman's fan to revolve and thus fresh air is pumped promptly and in large volumes into the tunnel so as to render the work quite safe. On the Catalan Bay side the same precautions are taken and I was able to see for myself the admirable situation of the new gathering grounds. Altogether this bold scheme is progressing rapidly and will ultimately give Gibraltar, its trade, and its shipping more pure water than it is likely to



The new water-supply for Gibraltar. The sandy slope above Catalan Bay which will be covered with corrugated iron and will constitute the gathering ground.

idea is to enlarge this tunnel for the greater part of its length and to create an elongated reservoir which will hold 17,000,000 gallons. When this is done the water difficulty will be settled for ever. Already at the time of my visit a great part of the tunnel had been pierced and it was hoped that the miners would get through the rock in the course of the month of July. The tunnel, it was estimated, would be in a condition to receive and to convey the water through from Catulan Bay to Gibraltar town by next September. At first it is proposed to cover only ten acres of the sandy gathering ground with corrugated iron roofing, but there are altogether 40 acres available for this purpose.

With the very courteous assistance of Mr. Copeland I was able to visit in detail this gigantic enterprise. On the Gibraltar side I penetrated the tunnel to a distance of 733 feet and had then more than 700 feet of rock above my head. Yet even here water was still oozing through, showing the need. Therefore full provision will then be made to meet the demand during exceptionally dry seasons. Mr. Copeland, as the engineer who has devised this scheme, and the authorities who have had the courage to carry it out almost as soon as it was proposed, are to be congratulated; they will certainly win the gratitude of all who are concerned in the welfare of "The Rock."

REVACCINATION OF TRAMPS.—As a precaution against small-pox the Christchurch (Hampshire) board of guardians recently resolved to try the experiment of having all the tramps who visited the workhouse medically inspected and, if they consented, revaccinated. The plan was tried for one month but none of the tramps would consent to the operation and the experiment, which cost the guardians about £10, was abandoned.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—Two remarkable letters under the above heading have appeared in your recent issues. One is by Dr. G. Archdall Reid (July 4th, p. 56) who asserts that evolution is caused by injurious agents eliminating the unfit, and the other is by Dr. J. Wiglesworth (July 18th, p. 186) who denies the arguments and conclusions of Dr. Reid. As both cannot be right one or both must be wrong.

Dr. Reid begins by stating that the theory of the transmission of acquired traits is now generally abandoned, but that a great many still believe (of whom he is not one) that the effects of poisons and privations on the parents affect the future offspring by their effects on the germ cells through the medium of the blood. The argument is used that the germ cells, like other body cells, must be injured by a poison such as lead, for example, and thus since the germ cells are injured the future offspring must be injured in a like manner. Now it must be noted that Dr. Reid does not deny that the germ cells may be injured by a poison or any other injurious agent; what he does assert is that it is difficult to believe that the descendants of such damaged germ cells should still continue to perpetuate the injury done long after the injurious agency has ceased to act; for if this were so in cells other than germ cells then there could be no true recovery from illness, and if it is not so in the body cells then it may be asked, why should the injury done long ago be perpetuated in the descendants of the germ cells? Further, Dr. Reid points out that asexual reproduction results in exact copies of the parent, whereas the offspring of sexual reproduction always differ more or less from the parents and from one another; that is, sexual reproduction, however it brings it about, is the cause of variation, and thus it is that many biologists have concluded that external agencies have little or no influence on offspring subsequently produced. Of course, as Dr. Reid has pointed out elsewhere, variation must in the last analysis be the result of acquired traits, but that is not the question involved here. Again, if acquired traits are transmitted and thus become variations in the second generation from the parents, then certainly all acquired traits are not transmitted—e.g., the wrinkles on the brow of an old man who has become a father or the distorted foot of a Chinese woman. With reference to alcohol and toxins, if injury is caused to the future offspring by the action of these agents on the germ cells, then this degeneracy, variation, or inborn trait is caused by an external agent circulating in the blood, and as variations are transmissible to future generations, and as these variations can either by natural or artificial selection be rendered stable in the race, it is thus that new species are evolved and the unfit individuals are eliminated, for if the offspring are injured through the germ cells by poisons circulating in the parents' blood, and as this would be a variation, and as this variation would accumulate in future generations, it follows that these future generations would become more and more degenerate in the case of alcohol so as at last to lead to extinction. If, however, these injurious agents, whatever their effect may be on the germ cells, do not affect the future offspring and as they tend to eliminate the unfit—for example, in malaria, phthisis, alcohol, &c.—the result will be that the race will become more and more resistant to them, and this is simply natural selection. Man has undergone evolution, as is evidenced by his size, colour, and hair, but he is still evolving with regard to disease and especially so with regard to alcohol. Samuelson in his "History of Drink" has pointed out that races that have had a prolonged acquaintance with alcohol are the soberest on earth—e.g., Jews, Chinese, South Europeans, West Africans, &c.—and that this sobriety is in exact proportion to the past experience of the alcohol. The same is to be said of disease; each race is resistant to disease in exact proportion to its past sufferings from it—e.g., phthisis in Great Britain, malaria in West Africa, &c. Races that have had no past acquaintance with alcohol or infectious disease are quickly eliminated when brought into contact with them—e.g., the South Sea Islanders with phthisis and Red Indians with regard to drink. I trust this is a fair presentation of Dr. Reid's arguments—at least I believe it is as fair as could be achieved with the limited space I have allowed myself.

Dr. Wiglesworth, in his letter to you, represents Dr. Reid as asserting that the germ plasm is incapable of receiving permanent injury by the agency of poisons circulating in the blood. For this statement of Dr. Wiglesworth there is not one iota of justification. What Dr. Reid did say was, "Even if the germ cells are injured it does not follow that this injury will be perpetuated in their *very* remote descendants—i.e., in the *body* cells of the child—at a time long after the injurious agency has ceased to act." Dr. Wiglesworth concedes that the main cause of variation is bisexual reproduction but holds that there *may* be other causes. Certainly; other causes have been held, such as the accumulation and transmission of acquired traits. In support of this theory can Dr. Wiglesworth, or any other, advance one indisputable instance of the transmission of an acquired trait? Of course, it must be understood that we are at present dealing with multicellular organisms, for it is possible that in the unicellular world natural selection is by the accumulation and transmission of acquired traits, for example, the conversion of small-pox into vaccinia by passing the virus through the cow. It is not necessary to suppose, as Dr. Wiglesworth seems to think others do, "that the germ plasm is wholly uninfluenced by being placed in an adverse nutritional environment, such as must exist when alcohol or other poisons are circulating in the blood," nor yet that the germ cells "should be exempt from the operation of biological laws" (whatever they are), "and that the nature of the nutrient medium by which they live is of no consequence to them"; nor, again, "that recuperation in damaged germ cells must inevitably occur"; nor that it is a matter of indifference as regards the well-being of the offspring whether these are born of dissolute parents whose tissues are soaked in alcohol or of these same parents whilst living physiologically correct lives. Dr. Wiglesworth comes to closer grips with the question and confines his arguments to the action of alcohol as observed in the individual and in the race. He proceeds to refer to statistics of his own, tending to prove that parental drinking is a cause of filial drinking as well as of filial insanity. In a large number of those who are victims of nervous complaints, such as insanity, he finds a history of drinking in the parents. Exactly so; and in another large number there is no history of parental drinking; in another where the parents have been drunken there is no insanity. Does this prove anything? If alcohol can damage the adult brain—and no one I think will question the statement—is it not as likely to damage the growing brain of the embryo? Here, however, Dr. Wiglesworth does not attempt to distinguish between variation and an acquired character. That the germ cells may be damaged by parental drinking is one thing but it is quite distinct from the damage done to the growing embryo by the habits of a drunken mother during her pregnancy. Unless Dr. Wiglesworth does this his statistics are worthless or at least cannot be relied on. If the injury is done during the growth of the embryo it is certainly not a problem in heredity. If, however, the germ cell is damaged by the alcohol and the offspring developed from these cells are more drunken than they otherwise would have been, or mentally weaker than they otherwise would have been, then it is a variation or inborn trait, and as these tend when transmitted the race would tend to become more and more drunken or more and more insane and thus tend to extinction. No doubt it would be difficult if not absolutely impossible to separate the acquired part of the alcoholic diathesis from the inborn, for the child can have no more recollection of the parent's gratification with alcohol than it can of his gratification with green cheese. If, however, the problem seems insoluble when applied to the individual it is not so when applied to the race. The Chinese, for instance, are one of the most sober races on the face of the earth; 3000 years ago they were one of the most drunken. Evolution has proceeded here in making them more tolerant of the action of alcohol or of avoiding it or both. Certainly it has not tended to make them more drunken nor insane. Races that have had no acquaintance with alcohol until recently are the most drunken on the earth and surely here filial drinking cannot be charged to the parents. Dr. Wiglesworth proceeds, however, to say

that the case of alcohol is not parallel with disease, for in disease, he says, it is the younger units who are wiped out. Is this so with syphilis? He also says that alcohol comparatively seldom destroys the individual until after the procreative faculty has been more or less exercised. This certainly must happen very, very often, but perhaps not so often as Dr. Wiglesworth thinks. Even if the parent escapes, are we so sure that the child will escape also? It is surely notorious that men and women as a rule are disinclined to wed those who have become drunken. Notice must also be taken of the vast numbers of children born of drunken parents—and who, presumably, would have the inborn desire for indulgence in alcohol—who die an early death because of neglect and injury. Here nature is at work eliminating the unfit even if she has missed the parent. Dr. Wiglesworth does not believe that there is sufficient historical evidence to suggest that every member of any community has been so completely saturated with alcohol as to preclude any germ plasms existing untouched by this poison; can he name one race now sober which was not at one time very drunken? Or can he name one which had no acquaintance with alcohol once not now drunken? But what does his question amount to? Unless he can prove that the future offspring derived from germ plasm once damaged by alcohol is also damaged it has no bearing on the question of the evolution against drink. Nevertheless, as man differs immensely in his desire for alcohol there must also have been a difference, however slight, in the beginning, else the whole race would have been extinguished. Similarly, there must have been a difference in the beginning in man's resisting power to malaria, else all would have been exterminated in the regions the haunts of malaria. It is only those who varied favourably who survived and continued the race. This is as true with regard to alcohol as it is to malaria and to every zymotic disease.

One word more. Many are hoping for a time when alcohol may be banished from the face of the earth. That day will never come, for as there is as great a tendency to atavism as there is to evolution there will always be numbers who will drink simply for the pleasure of deep indulgence and of getting drunk. Nature is eliminating the great numbers who have the craving for getting drunk slowly and surely, only leaving those to survive who can drink without the desire to get drunk, such as the Jews of to-day. She could be helped, but the day is not yet.

I am, Sirs, yours faithfully,

July 19th, 1903 C. R. NIVEN.

NOT "THE USUAL BOND."

To the Editors of THE LANCET.

SIRS,—The attention of the council of the Medical Defence Union has lately been called to a case in which house surgeons and house physicians of a provincial hospital have been required by the board to sign a bond to prevent and to prohibit them from practising in the district in which the hospital is situated at the termination of their resident appointments and at any future time. I am directed by the council to ask you to allow them to warn candidates for such appointments against signing such bonds which cannot be enforced legally but which morally may prevent them from advancing their career in a district in which they might desire later to settle down. The method adopted is contrary to all ethical principles as it makes a condition which may prevent men well qualified from holding the appointments; such appointments should be open to the best candidates. It is impossible to believe that in case of breach of this bond the moneys of the hospital would be spent in obtaining, or attempting to obtain, an injunction and no medical man should bind himself down to a lay authority not to practise in a certain district.

I am, Sirs, yours faithfully,

A. GEORGE BATEMAN,
General Secretary, Medical Defence Union.

Trafalgar-square, W.C., July 21st, 1903.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—I am able to add another case of goitre successfully treated by the use of distilled water to the three reported by Dr. C. A. Rayne in THE LANCET of July 18th, p. 185. I was consulted last September by a young woman, aged 17 years, who was suffering from a medium-sized goitre. The water in the village where she lived was very hard and bearing in mind the prevalence of goitre in districts where such is the case I advised her to give up entirely the local drinking water and to drink only non-aerated Salutaris water, which is, I believe, distilled water. She has done this since and is very greatly improved in health and the goitre has diminished both in size and in firmness—a result that I attribute to the change from a hard to a perfectly pure soft water.

I am, Sirs, yours faithfully,

Lincoln, July 20th, 1903. W. H. B. BROOK, M.D. Lond.

THE PRELIMINARY SUBJECTS OF MEDICAL EDUCATION.

To the Editors of THE LANCET.

SIRS,—It is obviously impossible to condense into a few lines all the arguments urged and points brought forward in a speech which, *horresco referens*, occupied nearly half an hour. Hence I cannot and do not complain of your report of my remarks at the recent meeting of the General Medical Council. But there is one error to which, in justice to myself and others, I must be allowed to call attention. I did say that the examination in physics at the Conjoint Board was a farce and I also pointed out that the board of management and not the examiners was responsible for the regulations under which the examinations were held. But I certainly did not characterise *this* arrangement as a farce, as your report makes me do, nor, as a matter of fact, were the two observations made in connexion with one another, as the process of compression would make it appear that they were. My point was that the examiners were working under rules laid down for them for which they were not responsible. This may or may not be a good plan; I expressed no opinion of any kind upon that question but merely stated what had been conveyed to me as a fact at the time of the inspection.

As I am writing, may I add that I certainly did not use the phrase, "sit hours to set up a more ideal curriculum," though to some extent it expresses my meaning. I feel that the first year of medical study is by no means in a satisfactory condition and that if we could attack that problem and solve it we should be doing a good piece of work in the interests of medical education. I sincerely hope that some settlement may now be arrived at with the Royal Colleges as the result of this recent meeting and that when that has been accomplished we may seriously devote ourselves to the task of reforming our curriculum, especially as regards the earlier subjects of study.

I am, Sirs, yours faithfully,

Birmingham, July 18th, 1903. BERTRAM C. A. WINDLE.

OCIMUM VIRIDE AND MALARIA.

To the Editors of THE LANCET.

SIRS,—I have been very much interested in the correspondence which has recently appeared in the press at home concerning the anti-malarial properties of the plant ocimum viride. This plant is a native of the west coast of Africa and glowing accounts have appeared as to its presumed anti-malarial properties. Although it does not grow in Hong-Kong it belongs to the same genus as the well-known pot-herb basil which is cultivated here. Professor Groom, formerly lecturer on botany at the Imperial Naval College at Whampoa, China, has written an article recently referring to the anti-malarial properties of the papaw tree. He mentions that during his stay in China he never saw any insect whatever on these trees. This tree is very common here and its well-known digestive properties are much appreciated, but on one of these trees recently two species of fly and one of ant were found. The castor-oil plant has also had its turn as being anti-malarial.

Undoubtedly the eucalyptus possesses anti-malarial properties, due, I take it, partly to the essential oil contained in its leaves but chiefly to the property it possesses of converting swamps (breeding places for mosquitoes) into dry land. If a plant could be found which possesses all the properties ascribed to the ocimum viride it would prove a great boon to the long-suffering residents in the tropics whose midnight slumbers are often disturbed by these tiresome pests (mosquitoes), not to mention the flying cockroaches and numberless vermin which infest these

regions. An attempt is to be made to grow this plant here but I very much doubt whether it possesses such wonderful properties as have been described. I should not be surprised were the old upas tree to be "trotted out" as an anti-malarial agent.

I am, Sirs, yours faithfully,

J. M. ATKINSON, M.B. Lond.,
Principal Civil Medical Officer, Hong-Kong.

Hong-Kong, June 13th, 1903.

THE CAVENDISH LECTURE.

To the Editors of THE LANCET.

SIRS,—In your accurate and generous abstract of my Cavendish Lecture, published in THE LANCET of July 18th, may I correct one little error which vitiates the meaning of an important sentence. Your report runs thus (p. 141, col. 2): "Herein lies the perilousness of aortic pain to him whose heart is frail—to him, let us say, whose coronary arteries are occluded, which, by the way, is far from being a necessary consequence—and whose cardiac muscle is in decay." The sentence should run thus: "Herein lies the perilousness of aortic pain to him whose heart is frail—to him, let us say, whose coronary arteries are occluded and whose cardiac muscle is in decay, which, by the way, is far from being a necessary consequence."

I am, Sirs, yours faithfully,

July 20th, 1903. T. CLIFFORD ALLBUTT.

INCREASE OF LEPROSY IN BARBADOS, WEST INDIES, AND TWO OF THE SO-CALLED CURED CASES.

To the Editors of THE LANCET.

SIRS,—From time to time cases of leprosy are reported as cured, and it is with a view of bringing up the pseudo cure of this loathsome disease that I venture to allude to two of the numerous cases that have been brought under my notice.

CASE 1.—A negress, aged 17 years, was admitted into the lazaretto by Dr. Leonard T. F.-S. Archer, visiting physician, suffering from tuberculated leprosy on Nov. 30th, 1894. She was put upon salicylate of soda mixture and in about six months after being treated she had considerably improved and no trace of leprosy can at present (December, 1902) be seen.

CASE 2.—A negress, aged 35 years, was admitted to the lazaretto as a case of mixed leprosy on Oct. 10th, 1901. The hands were markedly "clawed" and the other signs of leprosy well marked. After one year's treatment with salicylate of soda mixture there was no trace of leprosy—she was "apparently cured."

These cases so struck me when I was acting for Dr. Archer that I spoke to him about the advisability of suggesting to the Government the construction of a separate place for the cases "apparently cured" as a means of getting the numerous cases of leprosy that are allowed to roam at large over the island into the lazaretto for treatment, and thus make some move by isolation towards the stamping out of a disease which is undoubtedly on the increase in Barbados. At the end of December, 1883, there were 72 lepers in the lazaretto and at the end of December, 1902, there were 119. The following table shows the number of fresh admissions from 1883 to 1902:—

Year.	Fresh cases.	Year.	Fresh cases.
1883	18	1893	20
1884	21	1894	22
1885	23	1895	13
1886	12	1896	21
1887	16	1897	22
1888	13	1898	23
1889	38	1899	17
1890	29	1900	13
1891	16	1901	17
1892	19	1902	24

But we cannot expect to get even a proper attempt at isolation of cases of leprosy when persons suffering from leprosy are employed in the lazaretto and allowed to live outside the institution and enjoy the liberties of ordinary persons as to marriage, &c. The cases of apparently cured leprosy, if the patients live long enough, will break out again, so I hardly think it fair for them to be written up as cured, when the disease is undoubtedly only under a temporary arrest.—I am, Sirs, yours faithfully,

FREDERICK DEANE, F.R.C.S.Edin.,
Visiting Physician (Acting), Lazaretto, Barbados, W.I.

THE FATAL EFFECTS OF CHLOROFORM ON CHILDREN SUFFERING FROM A PECULIAR CONDITION OF FATTY LIVER.

To the Editors of THE LANCET.

SIRS,—I was much interested with Dr. Leonard G. Guthrie's paper which appeared in THE LANCET of July 4th, p. 10. When I was pathologist to the East London Hospital for Children I had the opportunity of examining a case similar in many respects to Dr. Guthrie's. The history was briefly as follows. A very fat child, aged ten months, was admitted to the above hospital under the care of Dr. H. Morley Fletcher on March 16th, 1903. The mother stated that the child had suffered from a cough for a few days before admission to the hospital and had had attacks of vomiting after coughing. There had been no diarrhœa. The child was breast-fed and had always been perfectly well. The parents were healthy and also their other children. The child appeared to be very ill when brought to the hospital. The radial pulse was only just perceptible and was very rapid. The temperature was subnormal (97° F.). The child improved for a short period after a mustard bath. Physical signs of broncho-pneumonia at the base of the left lung were the only abnormal changes detected. The child gradually became more drowsy and died about 24 hours after admission to the hospital. The temperature was subnormal while under observation. A necropsy was performed about 12 hours after death. The body was covered with a thick deposit of adipose tissue. There was well-marked evidence of rickets in most of the bones. There was no discolouration of the skin or conjunctiva. Patches of broncho-pneumonia and collapse were scattered throughout the left lower lobe. The rest of the lungs were healthy. The bronchial glands were enlarged but there was no evidence of tubercle. The heart muscle and cardiac orifices were found to be normal. All the serous sacs were normal. *The liver was a pale fawn colour* and presented a most striking appearance. Sections of the organ were made in various directions and except for scattered purple dots the liver was of the same uniform colour. There was no thickening of the capsule and the liver substance was perfectly firm. No hæmorrhages were seen on the surface of the organ or elsewhere. The bile and pancreatic ducts were carefully dissected along their course but were found to be normal. The gall-bladder, pancreas, kidneys, spleen, and adrenals were apparently healthy. The stomach contained a small quantity of partially digested food, but this viscus and the whole of the intestinal tract were found to be normal. The rest of the body was quite healthy. Pieces of the liver[1] were hardened in 10 per cent. formalin and stained with Sudan III. and Scharlach. Typical large and small fat droplets were scattered diffusely throughout the liver tissue. Sections of the liver were also stained with hæmalum and eosin. There did not appear to be any hepatic tissue left; the whole of the sections were composed of clear spaces, with a few scattered nuclei and the portal canals. No granular matter was present; in fact, there was little to be seen except for the honeycombed arrangement already referred to. The fatty degeneration was uniform; both the central and peripheral portions were equally affected.

No cause could be assigned for the extremely fatty liver which I found in this case. At first it was thought that we might be dealing with a case of phosphorus poisoning, but further observation showed that there was no evidence to substantiate this view. Acute yellow atrophy of the liver might be dismissed in a similar manner. The only changes observed at the necropsy were broncho-pneumonia and rickets, but one never sees such a condition of the liver in either of these diseases. It is most probable to my mind that we have here

[1] The specimen is now in the museum of St. Thomas's Hospital.

an example of fatty liver similar to, but perhaps even in a more advanced stage than, the condition described by Dr. Guthrie. The child had never had any chloroform and the question of carbolic acid or other poisons was stoutly denied by the mother. There is one more point I should like to mention, however—viz., the complete absence in my case of such symptoms as violent vomiting, fever, delirium, slight jaundice, &c. Trusting these few notes may be of interest to those who have read the interesting paper by Dr. Guthrie,

I am, Sirs, yours faithfully,

LEONARD S. DUDGEON,

Superintendent of the Clinical Laboratory, &c., St. Thomas's Hospital, S.E.

July 10th, 1903.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 4th, p. 10, Dr. Leonard G. Guthrie calls attention to this subject. The paper opens up a most important question, for I fancy that most surgeons in children's practice have had the misfortune to lose cases within 48 hours of a comparatively simple operation and after the succession of symptoms described. The possibility of carbolic poisoning could not, in some of Dr. Guthrie's earlier cases, be absolutely excluded, so it is of importance that instances in which this agent was not used should be recorded. The following is a case in point.

A healthy boy, aged three years, was admitted into the Manchester Children's Hospital in June, 1902, for the radical cure of a right inguinal hernia. Operation was performed two days later. The skin area was prepared by soap, spirit, and turpentine, followed by weak biniodide solution. No antiseptic was used throughout the operation which was an entirely uncomplicated Halstead's operation. There was little after-vomiting. Symptoms of restlessness commenced at the end of 24 hours, gradually progressing to coma, death taking place 48 hours after the operation. There was no marked rise of temperature until five hours before death (103° F.). Necropsy 24 hours after death showed marked congestion of the brain and membranes. The liver was of the pale buff colour described. All the other organs were absolutely healthy. Bacteriological examination of the wound and of the blood gave a negative result. Unfortunately no minute examination of the liver was made, but I remember being much struck by its remarkable appearance.

Isolated observations of similar cases have within the last few months been made and the fatal result ascribed to (*a*) some form of acetonæmia or (*b*) "the lymphatic diathesis," with the presence of an enlarged thymus gland. Unfortunately I cannot for the moment put my hand on the references to the papers, which are quite recent, with these suggestions. It may be noted, however, that Dr. Guthrie calls attention in his paper to the smell of acetone in the breath of children suffering from acute gastric catarrh and suggests that these may be the cases in which chloroform is especially dangerous. It is difficult in similar cases to the above to be convinced of the entire absence of any septic complication. Without a proper examination of the wound and the blood one is hardly justified in a diagnosis. But for this restraining influence I am afraid other instances could be rather freely collected. It is to be hoped that Dr. Guthrie's paper will bring out further evidence to throw light on a most interesting and important problem.—I am, Sirs, yours faithfully,

Manchester, July 17th, 1903. W. P. MONTGOMERY.

THE EXTENSION OF HAMPSTEAD HEATH.

To the Editors of THE LANCET.

SIRS,—Your notice about the extension of Hampstead Heath showed your sympathy with the movement and therefore you will perhaps allow me to add the names of the officers of the council and my address, to which offers of donations can be sent. The Right Hon. G. J. Shaw-Lefevre is the president, the Earl of Meath is the vice-president, Sir Robert Hunter and Mr. E. Bond, M.P., are the joint treasurers, the bankers of the fund are the London and South-Western, Limited, 28, High-street, Hampstead, and Lloyd's Bank, Limited, Rosslyn-hill, Hampstead, and I am the honorary secretary. Our first council meeting was held on June 26th but already nearly £7562 have been promised, besides £3000 conditionally offered, but that sum is a long way below the total of £48,000 that is needed. It behoves, therefore, all who care to preserve the beauty and freshness of Hampstead Heath to send their gifts or promises without delay, and if any will bestir themselves to interest others I shall be glad to send a paper giving full details, with a map, a picture of the heath and the fields, subscription form, and any other information that is required.

It is delightful to those of us who know the lives of town workers, the stress and pain of heat and crowds and noise, to think that the tube railway will soon bring swiftly and cheaply hundreds and thousands of them out to the clean air and verdant loveliness which the Heath affords. But unless the 80 acres of the neighbouring fields are secured the large numbers will destroy the beauty they go to seek and the streets of small houses that it is proposed to build will spoil the far-famed view and defile the bright high air with smoke. It is not as one who sometimes rests in a cottage in Hampstead, but as one who often works in Whitechapel and knows the conditions of the thousands of people who live in places where flowers will not grow, that I tell of this need to the public-spirited of your readers who care to give to impersonal causes.

I am, Sirs, yours faithfully,

HENRIETTA O. BARNETT,

of Toynbee Hall; Honorary Secretary of the Hampstead Heath Extension Council.

St. Jude's Cottage, Hampstead, July 15th, 1903.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Officership of Health: Retirement of Dr. A. Hill.

Dr. J. Robertson, Dr. A. Hill's successor, has now been appointed in accordance with the recommendation of the health committee reported in my last letter. It was to be expected that an officer who has occupied his position for so many years as Dr. Hill has done would not be allowed to lay down his charge without some recognition of his services. The health committee has expressed its opinion in the following resolution which was passed at its last meeting:—

That this committee wish to place on record their deep sense of the value of the services rendered to the city by Dr. Alfred Hill during the 30 years in which he has held the important office of medical officer of health. Under his guidance the general sanitary conditions of the city have been greatly improved and the average death-rate reduced from 25·1 per 1000 in the four years 1873 to 1876 (this first four years of office) to 19·5 in the last four years and they are specially pleased that last year he had the satisfaction of recording the lowest annual death-rate in the history of the city—viz., 18 per 1000. They also desire to bear testimony to the fact that not only has his discharge of the duties of his high office been distinguished by that ability, conscientiousness, and sound judgment which have inspired confidence in his advice, but also by unfailing courtesy, which has commanded respect and esteem, and made his relations with successive health committees and his staff uniformly agreeable. They thank him warmly for his devotion to the public service, and sincerely hope that he may enjoy many years of happiness in his well-earned retirement from active public duties.

His colleagues in the service of the corporation have also shown their appreciation of Dr. Hill's work. The town clerk (Mr. E. Orford Smith) presided on the occasion of a presentation and was supported by most of the heads of the different corporation departments. In the course of his speech Mr. Smith made special allusion to the uniformly pleasant relations which had existed between Dr. Hill and the other officials during the 40 years of his connexion with the corporation, ten as public analyst and 30 as medical officer of health, and congratulated him upon the great decline in the death-rate which had taken place during his term of office. He presented to Dr. Hill, on behalf of the corporation officials, a silver tea and coffee service and a dozen silver teaspoons and expressed the wish that Dr. and Mrs. Hill might live for many years to enjoy the use of those articles. In his reply, Dr. Hill, after thanking his colleagues for their gift, recalled the fact that only one member of the corporation under whom he first served was still alive—Alderman Manton. He had seen all the others out and several series of them. He had at various times acted with the following chief officers: three town clerks, three treasurers, four coroners, two stipendiary magistrates, two borough surveyors, three clerks of the peace, five magistrates' clerks, four chief constables, and five chief inspectors of nuisances. The population in 1861, when he entered upon his duties, was 296,000 and to-day it was 533,000. Alluding to some of the work upon which he had been engaged Dr. Hill specially mentioned the closing of the town wells as a peculiarly arduous task, since there were 4000 of them, and an analysis had to be made of the water

in each. With regard to the food of the people he had with the aid of his assistants made 20,000 analyses during his time of office. Adulteration still flourished and he was afraid that it would continue to do so as long as very small fines were inflicted. Small fines did not act as a deterrent but seemed to have the effect of encouraging it. What was wanted was an extended official purchase of articles of food. He also reminded his hearers of a part of his work which might easily escape the notice of those imperfectly acquainted with the duties of his position—viz., the responsibility and danger which he had to incur in connexion with the investigation of the dynamite conspiracy. Samples were brought to him from time to time and were of such a character that he came to the conclusion that the explosive must be manufactured in the district. That view was opposed at the time but it turned out to be correct and more than a hundredweight of nitro-glycerine was discovered. If that had exploded it would have blown the neighbourhood to atoms. Dr. Hill's quarterly report shows a further decline in the death-rate to 18·4 per 1000—the lowest on record for first quarters of the year and no less than 1·2 per 1000 below the best death-rate previously recorded in any quarter. He attributes this result largely to the character of the weather. With the exception of a short spell of cold in the middle of January the weather was remarkably mild, only ten days during the whole quarter having a temperature below freezing-point, against 31 in the corresponding quarter of 1902. In consequence of this mild weather the deaths from those diseases which are most affected by cold, such as bronchitis and pneumonia, were much fewer than usual.

The Lunatic Asylum.

Dr. E. B. Whitcombe's report for the year 1902-03 contains a number of important facts and suggestions. He states that the number of patients in the various asylums on April 1st, 1902, was 1611 and the number admitted to March 31st, 1903, was 483, making a total of 2094. There were discharged during the same period as recovered, relieved, not improved, or died, 506, so that there remained in the asylums on March 31st last 1588. The decrease in the number at the end of the year is due to the discharge of all the patients in residence who were chargeable to Lancaster and London. If these are deducted it will be seen that the number belonging exclusively to Birmingham has slightly increased. The recovery-rate for the year was 43·49 per cent. and the death-rate 14·78 per cent. He calls particular attention to the large number of male patients who have been admitted suffering from the effects of drink and says that "over 23 per cent. of the male admissions were directly from this cause, and although a large majority of these get well and are discharged, it is very sad to find that so large a number come to our institution from a purely preventable cause. The percentage of females from the same cause has, I am glad to say, been only 8 per cent. There can be no doubt that a large number of these cases go to excess as a result of previous mental weakness, but by far the greater number, I fear, are genuine preventable cases. Suggestions and remedies for the prevention of drunkenness have been made for many years and these are as varied as they are numerous. How far coercion is going to be of service in this respect remains to be seen. My experience in dealing with the insane has long led me to the conclusion that coercive measures are fatal to recovery, to comfort, and to good management, and I cannot help thinking that such measures must prove absolutely useless in dealing with those who are mentally weak enough to gradually destroy themselves by excessive drinking. One of the recent cries of the British public, and especially of the working classes, is for more amusement, and I cannot see why this should not be provided outside and distinct from public-houses, where the temptation to excess is ever present. Few temperance houses have the attractions, either in building, amusements, and other resources, which can compare with those attached to public-houses." Dr. Whitcombe points out that only nine patients out of the large population of Birmingham have been admitted during the year as paying patients. He attributes this to the fact that there is no separate accommodation for such patients and that those who are admitted are classed as paupers, a fact which relatives very properly resent. Finally he makes an important suggestion. He says, "The completion of our new asylum at Hollymoor, when it takes place, will, I hope, give the committee more time and means to carry out some of these suggestions and to bring our institution up to the level of a modern hospital for mental diseases. This brings to my mind another matter which I have long since called attention to—the name 'lunatic asylum.' The word 'lunatic' is a misnomer, so far as it relates to mental diseases, and I hope, when Hollymoor is opened, that there will be a re-christening of our old institution and that we may have the title of the 'Birmingham City Hospital for Mental Diseases.'"

Inquest on a Lunatic with Fractured Ribs.

An inquiry was held into the cause of death of a lunatic, at the post-mortem examination upon whom it had been discovered that the third, fourth, and fifth ribs were fractured, two of them close to the sternum which was also fractured. Dr. A. T. Holdsworth, who made the post-mortem examination, stated that the lungs showed signs of pneumonia and that the bones were not only exceedingly brittle but also soft. The deceased had complained that a big man had sat upon his chest. He had been in a restless state for some days and some force had been necessary to keep him in bed. Owing to the pain caused by the fractured ribs it was impossible to percuss the chest, but the presence of pneumonia was diagnosed. Dr. Whitcombe stated that he had seen cases of this kind before and the condition of the bones was such that he had no hesitation in saying that the night attendant in holding the patient and using a more than ordinary amount of force injured the chest. He had not told the attendant so; he did not think he consciously did anything of the kind. Some disagreement arose amongst the jury as to their verdict, but eventually 12 of the 15 found that the cause of death was pneumonia, that more force than necessary was used, and that death was accelerated by the fracture of the ribs.

July 18th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Royal Institute of Public Health: Congress at Liverpool.

THE annual congress of the Royal Institute of Public Health, which this year was held at Liverpool, was opened with ceremonial dignity on July 15th by the Earl of Derby, K.G., in the small concert room of St. George's Hall, academical and municipal robes being much in evidence. His Lordship, who wore the insignia of a Knight of the Garter, was accompanied by the Lord Mayor of Liverpool, Dr. W. R. Smith (President of the Institute), the Lord Bishop of Liverpool, Sir Charles Cameron, Sir Henry D. Littlejohn, Sir Charles Petrie (ex-Lord Mayor of Liverpool), Sir William B. Forwood, and the Mayors of Birkenhead, Dover, Douglas, Ossett, Lancaster, Nelson, Hyde, and Macclesfield, among others. In his inaugural address Lord Derby asked to be allowed to express his very deep appreciation of the compliment which the institute had paid him. He felt it a high honour to be able to record his name alongside those of men of such eminence and light in the medical and other professions. Proceeding to deliver his address, he said that he was not sure that we are not priding ourselves too much on the advance made. He was not sure that on ordinary sanitary questions after all we were much in advance of some nations of antiquity. It might be humiliating but it was wholesome to remember that we were not the inventors of cleanliness. The Congress was resumed on July 16th when the sections met at University College. Discussions took place on rehousing and insanitary areas, the prevention of consumption in large towns, bacteriological research under public auspices, town milk-supplies, and other subjects, concerning which your special corespondent will write with more detail. In the afternoon visits were paid to the Liverpool municipal tenements and Port Sunlight and in the evening members attended a reception given at the Walker Art Gallery by Sir William Forwood and Lady Forwood. On July 17th and 18th the meeting of sections was continued. On the afternoon of the former day a garden party given by the Lord Mayor and Lady Mayoress of Liverpool was largely attended, while on July 18th members and delegates took advantage of a variety of excursions arranged by the local executive committee to visit places of interest in the districts round Liverpool. One party visited Chester and Eaton Hall, proceeding up the river Dee by steamer, a second party visited Hawarden Castle, and a third the Norton water

tower and the Liverpool pathological farm near Runcorn. There was also an excursion to Rivington waterworks on the invitation of the water committee of the city council as well as o visit to the Lancashire and Yorkshire railway workshops at Horwich. The Delamere Forest sanatorium were also visited, whilst other parties proceeded to the Isle of Man and Llandudno. On Sunday, July 19th, a large number of the members of the Congress and of the city council and other public men accompanied the Lord Mayor to the cathedral church of St. Peter where the Lord Bishop occupied the pulpit and preached an appropriate sermon to the members of the Congress. On the 20th the Section of Preventive Medicine was engaged in discussing the transmission of infectious disease, the need for greater power to cope with the spread of small-pox, and underground bakehouses. The establishment of municipal bakeries was suggested. The Bacteriological Section passed resolutions in favour of scheduling tuberculosis in animals as a contagious disease and the appointment of a Minister of Public Health. The annual Congress dinner was held in the evening at the Adelphi Hotel, under the presidency of the Lord Mayor. The company was a large and influential one. The membership of the Congress included delegates from 43 counties and county boroughs, 30 non-county boroughs, 88 urban and other local authorities, and 56 universities, colleges, and societies. The Liverpool meeting was a great success towards the attainment of which Dr. E. W. Hope, medical officer of health of Liverpool, and Dr. A. A. Mussen, his assistant, worked very hard.

Hospital Saturday and Sunday Funds.

At a meeting of the joint committee of these funds, held at the town-hall, the Lord Mayor presiding, the treasurer was authorised to make the following distribution—viz.: Royal Infirmary, £2992; Royal Southern Hospital, £2040; David Lewis Northern Hospital, £1768; Stanley Hospital, £986; Liverpool dispensaries, £816; Queen Victoria District Nursing Association, £816; Infirmary for Children, £816; Eye and Ear Infirmary, £544; Hahnemann Hospital, £544; Consumption Hospital, £476; Hospital for Women, £408; Ladies' Charity and Lying-in Hospital, £408; St. Paul's Eye Hospital, £408; Convalescent Institution, Woolton, £340, &c. The total of these sums is £13,600, being the same as last year.

July 21st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Newport Isolation Hospital.

WHEN the Newport (Mon.) Isolation Hospital was erected in 1896 it was anticipated that the 34 beds then provided would be found inadequate to the needs of a town with a population approaching 70,000 persons. The corporation is therefore to be congratulated upon the completion of a fourth ward pavilion to accommodate 22 patients. Additions, including lavatories, bathrooms, and 21 bedrooms, have also been recently made to the administrative block. The whole institution is now lighted with electric light, an installation of 500 lamps of 16 candle power having been provided in connexion with the town mains. The cost of the original hospital was £14,132, or £415 per bed; the total cost of the hospital as now completed is £24,277, or about £433 per bed. The inhabitants of the town appear to be anxious to make use of the hospital, for in 1902 there were treated in the wards nearly 54 per cent. of the patients notified as suffering from scarlet fever, diphtheria, and typhoid fever. During the same period, of the scarlet fever patients treated at home 2·5 per cent. died, compared with a mortality of 1·9 per cent. among those treated in the hospital, and among the diphtheria patients the fatality among the home-nursed cases was 5·1 per cent., compared with 3·2 per cent. among the hospital cases.

Small-pox.

South Wales is now almost free from small-pox. In Cardiff there have been no fresh cases for three weeks, Swansea has had no cases for many months, and the disease is absent from the populous mining districts except at Pontypridd where there have been nine cases since the middle of June. All the patients have been isolated in the district council's hospital and vaccination is being largely resorted to by the inhabitants of the town. In the town of Bridgend there is one case in the small-pox hospital, the patient having contracted the disease at Pontypridd.

Swansea Convalescent Home.

It is now very generally admitted by the managers of general hospitals that the most economical method of increasing hospital accommodation is by the provision of a separate building to which convalescent patients may be removed. Such an institution in connexion with the Swansea Hospital was opened on July 17th upon a site on the hillside commanding a magnificent view of the Bristol Channel and Swansea Bay, with the Mumbles on one side and Port Talbot on the other. There is accommodation for 20 patients in two one-storey pavilions, each of which includes a ward, a day room, and bath-room, lavatories, &c., with verandahs running the whole length of the front of the buildings which have a south-westerly aspect. Between the two pavilions and connected by an open covered way is a two-storey administrative block in which there are on the ground floor a large dining-hall for the patients, kitchens and rooms for the staff, while on the first floor are the staff bedrooms. The cost of the building was £4100 and only about £500 of this sum remain to be subscribed. The scheme was originated about two years ago owing to the generosity of an anonymous contributor who offered through the then chairman of the hospital board (Miss Dilwyn) to give £500 towards a building fund and £10,000 to be invested for the maintenance of the institution. It is estimated that the interest on this latter sum will be sufficient to maintain ten beds, which number it is proposed shall for the present be occupied. The managers of the Swansea Hospital, unlike those of some similar institutions, have during recent years been so well able to make both ends meet that it is hardly likely that they will allow their new convalescent home to remain only partially occupied.

Swansea Hospital Operating Theatre.

The operating theatre connected with the Swansea Hospital will no doubt be visited by a large number of the members of the British Medical Association during next week. It is circular in shape and has its floor, walls, and ceiling constructed of an impervious material. There is also an entire absence of ledges and niches which act as dust traps.

Death of Trevor Halket Evans, M.A., M.B., C.M. Cantab.

The sudden death of Dr. Trevor Halket Evans of Whitchurch on July 14th, at the early age of 34 years, has deprived the neighbourhood of Cardiff of one of its most promising practitioners. Dr. Evans was a son of Mr. Franklen Evans, J.P., M.R.C.S. Eng., who retired from active practice many years ago.

Pearn Convalescent Home.

The annual meeting of the Pearn Convalescent Home at Plymouth was held on July 17th under the presidency of Admiral Wilson. The medical report stated that during the past 12 months 500 patients had been admitted; this was the largest number since the foundation of the home, and compared with 485 in the previous year. The expenditure amounted to £978 and there was a favourable balance of £192. The report of the nurses' home in connexion with the Pearn Convalescent Home showed that 111 nurses had been admitted during the year, against 85 in the preceding year; the expenditure on the nurses' home for the year was £370.

The Dangers of Ice-cream.

The inspector of nuisances has reported to the Exeter sanitary committee that in various places in the city where ice-cream was manufactured the premises were rented by Italians who provided many of their nationality with sleeping accommodation. The rooms were in a very dirty condition and ice-cream was often made in a small dirty backyard or in the common kitchen. It was suggested that the public analyst should examine some of the ice-cream so that its condition might be ascertained. The sanitary committee, after discussing the report, decided to instruct the sanitary inspector to take samples of ice-cream and to submit them to the public analyst for analysis and bacteriological examination.

July 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Granard Guardians and their Medical Officer.

THE nursing scandal at the Granard union infirmary and the friction which has existed for months between the

guardians and their medical officer have recently assumed a more serious aspect. It will be remembered that after a prolonged inquiry the Local Government Board strongly censured the guardians for what it called "a most improper attempt to intimidate an officer in the conscientious discharge of his professional duties." The Board declined to go further into the conflicting statements of the nursing sisters and the medical officer but strongly urged the necessity for harmony in their relations. The sisters, however, repeated their statements as to Dr. J. M. S. Kenny's alleged insulting language and requested the board of guardians to pass a vote of censure on him. This was accordingly done, notwithstanding Dr. Kenny's denial of the charges against him *in toto*. This strong measure did not, however, suffice in the absence of any reprobation from the Local Government Board. The sisters were unsatisfied and resigned their connexion with the hospital. Trained nurses were appointed and it was hoped that no more would be heard of the matter. After a delay of many weeks the guardians have again taken up their cudgels against Dr. Kenny in support of their former nursing sisters. At their meeting on July 6th they proceeded to suspend their medical officer and called on the Local Government Board to inquire again into his conduct. The Board replied on July 9th that after the recent full inquiry and in the absence of any additional facts the guardians were not warranted in suspending their medical officer from duty. Moreover, that the suspension had now been removed and Dr. Kenny directed forthwith to resume his duties as workhouse medical officer. Owing to the suspension of Dr. Kenny and the failure of the guardians to obtain a substitute for him the patients in the infirmary were deprived of medical aid for about four days. At a meeting held on July 14th the clerk of the union read the following letter from Dr. Kenny:—

July 13th, 1903.

With reference to the death of a patient in the infirmary named Masterson, aged 45 years, I consider it to be my duty to report the circumstances of his death. On Monday last I directed the nurse to have the patient prepared for operation on the following morning. Being suspended by your board I was unable to perform this operation. On three previous occasions I was able to prolong this man's life and relieve his sufferings by such treatment. He was left unattended to. He died in great distress on Friday evening. I send you a letter I had from the nurse in charge on Wednesday evening and my reply. I resumed duty by directions of the Local Government Board on Thursday evening. On my return I found that nothing had been done for the patients with the exception of the care bestowed on them by the nurses during the interval of my suspension.

Yours obediently,
JOSEPH M. S. KENNY.

The clerk also stated that on July 8th Nurse Gallagher wrote to Dr. Kenny stating that a patient's temperature was 103·6° F. and the pulse was 118, that he looked feverish, and that she had applied to the master for a medical man, but no medical man had appeared. To this letter Dr. Kenny replied that he was prepared to attend on requisition if the master considered it necessary. After a long and irrelevant discussion the following motion was adopted:—

That inasmuch as an inmate of the infirmary, John Masterson, who died on Tuesday last and whose life could have been prolonged, if not saved, had there been a medical officer discharging the ordinary infirmary duty, and as the infirmary was without a medical officer from 12 o'clock noon on Monday till 4.40 on Thursday, in consequence of which an urgent operation necessary to save this man's life could not be performed, we hereby demand an explanation from the master as to why such medical officer was not procured.

The last meeting of the Granard board of guardians took place on July 21st, when a letter was read from the Local Government Board stating that it had instructed its inspector to hold an inquiry in reference to the death of the patient Masterson. It was marked "read." It seems to me that the Local Government Board is becoming more unpopular and more ineffective every day owing to its curious want of consistency and firmness. Its first letter to the Granard guardians after the conclusion of Dr. Joseph Smyth's inquiry was sufficiently strong. It informed the blundering and squabbling board that it had grossly neglected its duties, that it had incurred the punishment of dismissal, and hinted that but for some signs of improvement in the conduct of its business that penalty would have been visited on it. Now the Local Government Board has ceased to allude to anything penal, although the conduct of the guardians has become more and more hopelessly bad every week during the last two months. The Local Government Board is treated with discourtesy almost amounting to contempt and its letters are marked "read." Well may the *Irish Times*—the organ which ought to be, and usually is, the journal of the Local Government Board in Ireland—express the feeling of the public in a leading article of July 14th as follows:—

After the proceedings at yesterday's meeting of the Granard board of guardians it becomes a serious question whether the Local Government Board will not be guilty of a grave dereliction of duty if they do not dissolve the present board and send down paid guardians to manage the affairs of the union until feeling has somewhat cooled down in reference to the scandalous dispute which has given the local board such an unenviable notoriety.

Visit of the King and Queen to Belfast.

The principal function in which their Majesties Edward VII. and Queen Alexandra are to take part in Belfast is the formal opening of the Royal Victoria Hospital and the official programme has just been issued. Their Majesties will arrive at the new hospital, Grosvenor-street, on July 27th, at 1 P.M. They will be received by the Lord Mayor (the Right Hon. Sir D. Dixon, D.L.) who will present the Right Hon. W. J. Pirrie and Mrs. Pirrie and Mr. W. Crawford (chairman of the board of management). The last-named will read an address, to which the King will graciously reply, and the following gentlemen will have the honour of being presented: the Right Hon. Thomas Sinclair, D.L., Mr. R. H. Reade, D.L., Mr. A. McDowell, Dr. J. Walton Browne (chairman of the medical staff), Sir William Whitla (senior physician), and Mr. W. Henman (architect). Their Majesties will proceed to inspect the building and in the "Pirrie Ward" Miss Carlisle will have the honour of being presented. Her Majesty will name one of the wards the "Clarence Ward," when Professor J. W. Byers will have the honour of being presented. Their Majesties will then leave the hospital through the out-patient department, where Mr. W. McLaughlin, the builder, will have the honour of being presented.

Dr. E. C. Thompson, M.P., and the Omagh Guardians.

I am glad to say that in the case in which the Omagh guardians appealed against the decision of the county court judge awarding Dr. Thompson £6 6*s.* for acting for Dr. H. B. Fleming, medical officer of the workhouse, during that gentleman's illness, Mr. Justice Madden, to whom the appeal was made, has confirmed the decree with costs.

The Purdysburn Asylum, Belfast.

At a meeting of the committee of the Purdysburn Asylum, held on July 20th, a report was received from Mr. Henry Davey, M.I.C.E., London, the expert engaged to consider the question of the water-supply for the Purdysburn Asylum buildings, in which he pointed out that there were three possible methods of obtaining a water-supply—viz., (1) by pumping from the water commissioners' mains; (2) by sinking a well and pumping from it for all purposes; and (3) by taking water for washing purposes from the brook and obtaining a supply for drinking and culinary purposes either from a well or from the water commissioners' mains, involving a double system of pipes and tanks. After fully discussing the matter Mr. Davey recommends (1) that the power for all purposes, including pumping, should be provided by steam by a system of electric distribution (a water tower having a tank on the top, with a steam-engine and dynamo in the base, with electric accumulators, would need to be erected); and (2) that borings should be made to ascertain the possibility of obtaining the necessary supply from wells and pumping this water up to the tank. It was decided to send a deputation to the Belfast water commissioners to confer as to the possibility of obtaining the required water-supply from that trust.

July 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hysterical Women.

ONE of the most curious, and at the same time most dangerous, manifestations of the hysterical neurosis was dealt with at the meeting of the Academy of Medicine held on July 7th by M. Garnier, physician to the Depôt Infirmary. M. Garnier said that formerly the hysterical woman was considered as purely sensual, as a sense inebriate, but nowadays she was known to be the victim of an unfortunate lack of equilibrium and as one in whom the very worst disorders of sense, both motor and mental, could exist in company with the appearance of the most perfect physical health. The hysterical woman has been falsely accused, but she is, above

all things, a false accuser. M. Garnier cited cases in which hysterical women had brought the most monstrous accusations against their relatives, their neighbours, and their very fathers and mothers, the whole being entirely a figment of their sick brains but related with such perfect self-possession that even courts of justice had been wrongly led to infer that they were true. M. Garnier considers that the mental state of the hysterical woman is that of a child with a great tendency to lie. Imagination, auto-suggestion, and hystero-suggestion find in her a fruitful field and either as witness or prosecutrix she is dangerously suspect. In any case the judge in a trial where hysterical women appear should have them examined by a medical commission as a means of protection.

Cancer and the X Rays.

At the same meeting of the Academy M. Labbé remarked that a decision had been too quickly come to as to the cure of cancer by the x rays. For his own part he thought that the cases reported by M. Vigoroux[1] were those of benign tumours which could always be removed by ordinary surgery.

The Care of the Body.

At a conference recently held at Charleville upon the necessity for personal cleanliness M. Secheret gave the following interesting statistics. 100 of the working-class population were taken at random. Of these, two took baths in a bath, 18 washed their feet when they changed their socks, 52 washed their feet twice in the winter, their bodies and neck every Saturday, and their heads never, while 28 never washed at all.

Gastrotomy for the Extraction of 25 Foreign Bodies.

At the meeting of the Academy of Medicine held on July 15th M. Monnier related a case of a young man, aged 22 years, who had been admitted to hospital for epilepsy, from which he had suffered for some time. When in hospital he was observed to have melæna but no gastric trouble. He also suffered from permanent acute pain in the left hypochondrium, together with a sensation of crepitation. The diagnosis of foreign body in the intestine was made and the patient was transferred to the surgical ward. An incision was made over the junction of the descending and transverse colon but the intestine was found to be empty, although the stomach was noticed to be full of various metallic bodies. The incision was prolonged in the line indicated by M. Labbé and an incision two centimetres long was made in the stomach. 25 foreign bodies were extracted, comprising eight coffee-spoons, the lower portion of a three-pronged fork, one staple (*patte-fiche*), two bodkins, one tooth of a comb, one blade of a knife, one needle, and one key, the total weight being 230 grammes. To extract these it was necessary to use Péan's long forceps, for the cavity of the stomach was very large. As a general rule these foreign bodies lay perpendicularly to the large curvature of the stomach and at the cardiac end. The mucous membrane was not appreciably ulcerated. The stomach was closed with three layers of silk sutures and the abdomen was closed without drainage. The patient recovered without a bad symptom and on the twentieth day he was in perfect health. He had been allowed meat to eat for a week previously. After the operation he confessed that he had swallowed all these foreign bodies some six months ago, but he could not remember how long a time he had taken to do so.

July 20th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Use of Radium in Surgery.

AT recent meetings of the Vienna Gesellschaft der Aerzte interesting discussions on the physiological action of radium took place. Dr. G. Holzknecht and Dr. G. Schwarz reported the results of their experiments made with radium on animal tissues. They had found that the majority of animal tissues, especially the vitreous body and the crystalline lens, became fluorescent and phosphorescent under the action of radium, and they therefore concluded that Dr. Loudan of St. Petersburg erred in supposing that there was an irritation of the retina by the radium rays. It may be remarked that phosphorescence of the liquid contents of the eye under the influence of Becquerel rays had already been observed by the well-known German natural philosopher, Professor Giesel, some years ago. But more interesting from a practical point of view were some cases presented at the last meeting of the society by Dr. A. Exner and Dr. Holzknecht. These two physicians at first studied the pathology of the dermatitis produced by the action of radium. They found that the radium rays caused a degenerative change in the cells of the skin, in the cells of the walls of the capillaries, and in the interior of the small blood-vessels. They also succeeded in obtaining very remarkable therapeutical effects by the use of radium. Dr. Exner showed a case of Melano-sarcoma of the Skin in which an operation had been performed three years ago on the humerus and in which a great number of cutaneous melano-sarcomatous tumours, varying in size from three millimetres to 1·5 centimetres, had appeared round the shoulder eight months ago. These tumours had been exposed once for from five to 25 minutes to the rays emitted by three milligrammes of radium bromide. All the tumours which had been exposed more than 15 minutes became smaller a fortnight after the exposure and disappeared after a month. At the same time only a very slight dermatitis was produced in the skin covering the tumours in question. A second similar case of melano-sarcomacutis treated in the same way also showed much improvement. A third patient treated by radium rays suffered from epithelioma of the lip and had been operated on twice—namely, in 1891 and 1897. The disease recurred and there was a growth as large as a cherry when the patient was admitted to the General Hospital in May. From May 11th to June 3rd the tumour was exposed to the radium rays six times for from 15 to 20 minutes. Seventeen days after the first exposure the tumour had decreased in size very remarkably and its presence could not be recognised by clinical examination on June 26th. At the same time it was uncertain whether any cells of the new growths remained. All these cases were highly instructive as they showed that pathological formations could be destroyed by the action of radium rays without any obvious harm being done to the surrounding healthy tissues. The cases presented by Dr. Holzknecht were a successfully treated case of Psoriasis Vulgaris Gyrata (exposed for one minute), a case of Lupus Hypertrophicus of the Face (exposed for seven minutes), and an improving case of Epithelioma of the Cheek (exposed twice for five minutes). The last case presented by Dr. Holzknecht was one of Telangiectasis Plana of the Whole Left Upper Extremity and was very interesting. Eight spots of half a centimetre in diameter had been exposed for 10 minutes to the rays with the result that eight spots of the same size, consisting of perfectly normal and white skin, were visible amidst the red surface of the nævus. This case showed that the radium rays gave even better cosmetic effects than other methods of treatment. The general effect of the demonstration was to prove that radium acts as a very important remedy in many malignant diseases, in the treatment of which it will no doubt to a great extent supersede ordinary surgical methods and the application of the Roentgen rays.

Post-Graduate Courses.

Two series of vacation courses will be delivered this year, the first commencing on August 3rd and the second on Sept. 1st. The duration of each series will be four weeks. The majority of the courses are delivered either at the Vienna General Hospital or at institutes in the immediate neighbourhood of it, so that the student has not to lose time in going from one course to another. The fees for a single course varies from 50 to 100 kronen (from £2 to £4) and the aggregate duration of the lectures or demonstrations is at least 20 hours. The following courses will be given in August:—Anatomy and histology (normal), topographical anatomy and embryology, by Dr. Helly; normal anatomy of the central nervous system, by Dr. Schacherl; gross pathological anatomy, by Professor Ghon; pathological histology, by Dr. Stoerk; bacteriology, by Dr. Landsteiner; pathological dissections, by Dr. Landsteiner; pathological anatomy of the central nervous system, by Dr. Schacherl; pharmacognosy, by Dr. Hockauf; diagnosis and treatment of internal diseases, by Professor H. Schlesinger, Dr. von Czyhlarz, and Dr. Weinberger; diagnosis of heart and lung diseases, by Dr. Braun; diagnosis and treatment of gastric and intestinal diseases, by Dr. A. Schiff and Dr. von Czyhlarz; physical methods of examination, including radioscopy, by Dr. Weinberger; diseases of children, by Dr. Zappert and Dr. P. Moser; diagnosis and treatment of nervous diseases, by Professor von Frankl-Hochwart, Professor Redlich, Dr.

[1] THE LANCET, July 11th, p. 130.

Raimann, Dr. Erben, and Dr. Fuchs; mental diseases, by Dr. Stransky; surgical diagnosis, by Dr. Schnitzler; diagnosis and treatment of diseases of the urogenital system, by Dr. Zuckerkandl; "atypical" operations (*in cadavere*), by Dr. Foederl; pathological histology of the eye, by Dr. Wintersteiner; ophthalmoscopy, by Dr. Wintersteiner and Dr. M. Sachs; diagnosis and treatment of external and internal diseases of the eye, by Dr. Froehlich and Dr. Hanke; ophthalmological operations, by Dr. Hanke; laryngology and rhinoscopy, by Dr. Rethi and Dr. Hanszel; rhinological and laryngological operations (*in cadavere*), by Dr. Hanszel; practical "otiatrics," by Dr. Alt, Dr. Frey, and Dr. Alexander; otological operations, by Dr. Frey; and otological operations (*in cadavere*), by Dr. Alexander.

July 16th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Accidents from Fireworks.

JULY 4th was signalised in New York by a more than usually lavish display of fireworks. There were many more or less serious accidents. In connexion with the use of toy pistols—a favourite mode by which young Americans evince their patriotism—an interesting point has been raised by Dr. Connolly, the bacteriologist of the Newark, New Jersey, board of health. Dr. Connolly stated a few days before July 4th that he had found the bacillus of tetanus in blank cartridges on sale, thereby accounting for—to his satisfaction—the origin of the lock-jaw which so frequently follows wounds inflicted by toy pistols. Dr. Park, the bacteriologist of the New York board of health, is not of the same mind with Dr. Connolly as regards this matter. He says that exhaustive investigations made by him two years ago revealed nothing of the sort and that he remains convinced that the infection comes not from the cartridge but from fragments of skin, extensively covered with dirt, which are invariably driven into the wounds. The question is one that can doubtless be settled, although on the face of it there would seem to be a stronger case for Dr. Park than for Dr. Connolly. One fact is certain—that the children of New York are given far too much licence on Independence Day. To allow young boys to carry pistols and to use them to the menace of the public is foolish in the extreme.

Action by a Surgeon to recover a Fee.

A somewhat curious case is being tried in the United States Supreme Court before Referee James E. Kelly at the present time. Dr. Manley is suing to recover 8525 (£105) from the executor of the estate of the late Bridget C. Barrett. Dr. Manley's fee was for medical attendance and for operating for the removal of an abdominal cancer. Mrs. Barrett died and her husband refused to pay the bill. One of the witnesses called for Dr. Manley was Dr. Lee who assisted in the operation on the late President McKinley. Dr. Lee, in course of cross-examination, said: "The fact that the person does not live does not relieve the surgeon of his responsibility at the operation he has performed nor does it in any way mitigate his feelings; and, in fact, a man should be paid more when a patient dies than when he recovers." Dr. Lee further said "that a surgeon gets some credit if the operation is a success and is blamed if the operation does not prove a benefit and consequently surgeons have to base their charges on the responsibility they assume." At the time of writing the case had not been decided.

Floating Hospital of St. John's Guild.

Mention has been made in THE LANCET on several occasions of the work done for children in the hot weather by the Guild of St. John. During the summer a hospital for children at the seaside is carried on by this association. Last year two floating hospitals, carrying mothers and children from the tenement district of New York, sailed on every day of the week for a trip in the bay, thus affording the dwellers in this poverty-stricken neighbourhood the opportunity of enjoying fresh pure air for a few hours. Only one floating hospital will be available this summer owing to lack of funds. This decision was reached with much regret at a recent meeting of the board of trustees of St. John's Guild in order that the expenditures necessary for the summer might be kept within the limit of the contributions. The contributions received last year were not sufficient to pay the expenses of the two floating hospitals and the seaside hospital. If, however, enough money is received at an early date the second floating hospital will be put in commission.

July 10th.

Obituary.

ROBERT HALL WOODHOUSE, M.R.C.S. ENG., L.S.A., L.D.S.

BY the sudden death of Mr. Robert Hall Woodhouse at the comparatively early age of 52 years the dental profession loses one of its most distinguished members. He was the son of the late Mr. G. E. J. Woodhouse of Ansty, Dorset, and was educated at Milton Abbas Grammar School. He came to London in 1868, passed the College of Preceptors' examination, and entered at the Middlesex Hospital. He obtained the diploma of M.R.C.S. when 21 years of age and subsequently commenced his dental studies at the Dental Hospital of London. When fully qualified he entered upon private work by assisting his uncle, Mr. A. J. Woodhouse, whom subsequently he joined in partnership. He was for many years officially connected with the Dental Hospital of London as surgeon and as treasurer to the Dental School, holding the latter responsible office till within a short time of his death. He became Vice-President of the Odontological Society in 1892 and President in 1896. In 1901 he was elected chairman of the representative board of the British Dental Association. In a quiet and unostentatious way he did much to raise the status of the dental profession. He was conscientious in all his official duties, attending committee meetings and discharging all work intrusted to him with the utmost ardour and fidelity. Save that he lost two of his sons—one of whom was killed in the South African war—his private and domestic life was uninterruptedly happy. He was married in 1880 and leaves a widow, four sons, and a daughter. Though he worked hard he had the courage to take long holidays and towards the last few years of his life he reluctantly gave up to some extent both hospital and private work in obedience to medical advice. For the last two or three years his health had failed somewhat. Degenerative cardio-vascular changes, probably of gouty origin, manifested themselves, first by retinal hæmorrhage, then by mitral and aortic disease, and then by a slight hemiplegic attack. Whilst recovering from the last-named condition and whilst full of hope that he might shortly again return to work he was seized in the early hours of the morning of July 8th with an attack which was in all probability one of angina pectoris and died within the space of an hour.

Robert Woodhouse was one of the best of men. To know him slightly was to like him and to respect him; to know him well was to love him. He endeared himself to everyone by his simplicity of mind, straightforwardness, integrity, generosity, charity, and consideration for others. His charity was of a high order; when he helped one friend he did not tell another. In his official and professional life he was the very soul of honour. In a word, his personality was such that not only did it influence for good during his lifetime those who were fortunate enough to know him, but it remains in their memories and will continue its influence even though Robert Woodhouse is no more.

FRANCIS HARRISON WALMSLEY, M.R.C.S. ENG., L.S.A., J.P.

THE ranks of our profession in Manchester and Salford have again suffered grievous loss in the death of Alderman Walmsley of Higher Broughton, who has soon followed his neighbour, Dr. R. Crean. He was only taken ill on July 12th and died on the 16th. He was in his seventy-fifth year, but his neat, alert figure and air of activity told little of the weight of years. His father was a medical man, living in Dale-street, not far from the present infirmary, and there Walmsley was born. He decided to enter the medical profession, became a student at the Pine-street School of Medicine, now merged into the medical department of the Owens College, and at the Manchester Royal Infirmary, and became qualified in 1849, soon obtaining an

extensive practice. In 1855 he was appointed one of the honorary surgeons to the Salford Royal Hospital, and after many years' service became one of the consulting staff. He took an active interest in public health, was one of the early members of the Manchester and Salford Sanitary Association, and was for a time one of its honorary secretaries. Though having the cares of a large and important practice he set an example of public-spirited activity in municipal work which, if it were more frequently followed by medical men, would be for the great good of the community. So far back as 1864 he was elected a member of the Salford town council, where he soon showed his interest in sanitary and educational matters and discussed them with an ability which "speedily obtained for him recognition from his colleagues as an authority on sanitation and health." At his death he had been an alderman of the borough for nearly 30 years. Soon after the passing of the Public Health Act, 1868, he submitted to the council a scheme, which was carried out, for the formation of a health department and the appointment of a medical officer of health. The question of river pollution has always been a serious one for Manchester and, Salford and Mr. Walmsley laboured hard for many years in the cause of purification, being an early member of the Mersey and Irwell Joint Committee and acting for some time as chairman of its chemical section. In 1877 he became chairman of the health committee of the Salford corporation and chairman also of the river Irwell conservancy committee. He was also one of the commissioners for dealing with the upper reaches of the Mersey. In 1876 he became Mayor of Salford and at the request of the council held the office for a second year. During these two years many important undertakings in connexion with Salford were completed. He was an ardent advocate and one of the original promoters of the Ship Canal. For many years he was an active member of the first School Board in Salford and later he was a representative of the magistrates of the borough, one of the governors of the Manchester Grammar School, and also a governor of the Owens College. He was an old member and ex-President of the Manchester Clinical Society, of the Medico-Ethical Society, and of the Certifying Surgeons' Association, and at the time of his death was President of the Medical Guild. From the year 1877 he was one of the magistrates of the borough and took his full share of magisterial work in connexion with asylums, &c. He was a generous supporter of many philanthropic institutions and, as one of the Manchester papers says, "his loss will be felt by the poor as keenly as by those in the very wide circle of his many admiring friends." At the conclusion of the business of the Salford Police-court on July 17th, Mr. Makinson, the stipendiary magistrate, referred in sympathetic terms to Mr. Walmsley's death, to his kindness, and to his having been for many years "one of the most useful, honourable, and upright members of the Salford corporation." One of his brother magistrates also bore testimony to his painstaking, judicious, and discriminating action as a magistrate and said that his "self-denying labours in the interest of the borough for a period of 40 years had rarely been equalled by any other citizen." He was buried at St. John's Church, Higher Broughton, of which he was one of the trustees and an old member of the congregation; his funeral, which was largely attended, gave evidence of a widespread feeling of respect and sorrow.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination (Anatomy and Physiology) of the Board at the July quarterly meeting of the examiners:—

Charles Edgar Harvey Adam and Arthur Keith Armstrong, St. Bartholomew's Hospital; Charles Amarasuriya, King's College, London; Godfrey Frederick Ely Allison and Walter Henry Skardon Burney, Guy's Hospital; Winfred Kelsey Beaman, Charing Cross Hospital; William Harvey Bennett, Owens College, Manchester; John Errol Moritz Boyd, St. Mary's Hospital; Hugh Westley Burman, University of Birmingham; Olliver Bruce and Horace Godden Cole, St. Thomas's Hospital; Henry Frank Collins, University of Madras; Percival Sandys Connellan, University College, Bristol; Paul Alfred Creux, Lausanne University and London Hospital; Horace Leigh Deek, University of Sydney; Horace Charles Colyer and Frans Gustaf Etholm, Charing Cross Hospital; George Bennicke Edwards, London Hospital; Howard Robinson Elliott, University College, Sheffield; John Jackson Whatley Evans, Westminster Hospital; Alfred William Byles, Guy's Hospital; Vivian Dartley Green-Armytage, University College, Bristol; Charles George Grey, Walter Bristow Griffin, and John Herbert Gurley, St. Bartholomew's Hospital; Cyril Verity Griffiths, King's College, London; Hugh George Hobson, Middlesex Hospital; Ernest Theodore Corbett Hughes, University College, London; Godfrey Martin Huggins, St. Thomas's Hospital; Harold Muncee Inman, B.A. Oxon., St. Mary's Hospital; Quah Sin Keat, B.A. Camb., Cambridge University and King's College, London; Charles Matherson Kennedy, London Hospital; Tudor Lloyd-Williams, University of Birmingham; John Ross Lloyd and Eric Stewart Marshall, St. Bartholomew's Hospital; Percy Collins Litchfield, B.A. Camb., Edward Morgan, and Henley Hamlyn Moyle, Guy's Hospital; Edgar John Cecil McDonald, L.M. and S. Bombay, University of Bombay and St. Thomas's Hospital; John George Macdonald, University of Otago, New Zealand; Owen Reginald McEwen, London Hospital; Frederick Evelyn Woolner Meadows and Gordon Nevil Montgomery, Middlesex Hospital; Frederick William Murray, University College, Liverpool; Alic Moore and Roger Brighouse Nicholson, Owen's College, Manchester; Charles Meiton Ockwell, Guy's Hospital; Max Onslow-Ford, St. Bartholomew's Hospital; George Singleton Parkinson, University College, Bristol; Charles Robert Mower Peaty, St. Mary's Hospital; Oscar Phillips Napier Pearn, Westminster Hospital; Richard Henry Phillips, University College, Sheffield; Stanislaus Reader and Russell John Reynolds, Guy's Hospital; Emmanuel Roberts, L.M. and S. Ceylon, University of Ceylon; Cecil Frederick Robertson, Middlesex Hospital; Felix Stephens Rood, University College, London; Gerald Noel Boyd Sebastian, St. George's Hospital; Henry William Skan, St. Bartholomew's Hospital; Walter Heaton Smith, Owens College, Manchester; John Heatley Spencer, Charing Cross Hospital; George Stone, Dalton William Tacey, B.A. Camb., and Harold Fitz-Vellacott, London Hospital; Alfred Hermann Christopher Suhr, B.A. Camb., Oskar Teichmann, B.A. Camb., and Henry Bright Weir, B.A. Camb., Cambridge University; Sydney Vosper, William Humphrey Williams, B.A. Camb., and Henry Dewi Hampton Willis-Bund, St. Bartholomew's Hospital; Geoffrey Wacher, Guy's Hospital; John Wells Whiteman, University College, Bristol; George Ernest Wood, St. Mary's Hospital; and Francis Percy Young, B.A. Camb., Cambridge University and St. Bartholomew's Hospital.

116 gentlemen presented themselves for this examination, of whom 74 passed and 42 were referred.

SOCIETY OF APOTHECARIES OF LONDON.—In July the following candidates passed in the subjects indicated:—

Surgery.—W. C. P. Bremner, Toronto and London Hospital; F. G. H. Cooke (Sections I. and II.), University College Hospital; M. B. Dawson (Section I.), Middlesex Hospital; E. H. Drinkwater (Sections I. and II.), Liverpool and St. Bartholomew's Hospital; L. E. Ellis (Sections I. and II.), St. George's Hospital; J. Ewing, Leeds; D. R. T. Griffiths, Guy's Hospital; K. Heanley (Section II.), Royal Free Hospital; T. W. S. Hills (Section II.), Cambridge and St. Mary's Hospital; W. Miles, Middlesex Hospital; H. G. Peel (Sections I. and II.), Leeds; and A. Turner (Section I.), Charing Cross Hospital.

Medicine.—S. Bentley (Section I.), Sheffield; F. M. Boclet (Sections I. and II.), Charing Cross Hospital; H. R. Clarke (Sections I. and II.), Cambridge, Liverpool, and St. Bartholomew's Hospital; H. N. Collier, Guy's Hospital; G. C. M. Davies (Sections I. and II.), Charing Cross Hospital; R. S. Dollard, Royal College of Surgeons in Ireland and Westminster Hospital; E. H. Drinkwater (Section II.), Liverpool and St. Bartholomew's Hospital; A. D. Edwards (Sections I. and II.), London Hospital; A. C. George (Section I.), Manchester; K. Heanley (Section II.), Royal Free Hospital; P. A. Pettavel, Lausanne; C. H. Pring (Section I.), Westminster Hospital; A. Rogers (Section I.), St. Mary's Hospital and Cardiff; F. J. Turner (Sections I. and II.), Guy's Hospital; and S. J. Weinberg (Section I.), Manchester.

Forensic Medicine.—H. R. Clarke, Cambridge, Liverpool, and St. Bartholomew's Hospital; R. S. Dollard, Royal College of Surgeons in Ireland and Westminster Hospital; A. D. Edwards, London Hospital; A. C. George, Manchester; W. B. Harris and A. E. Henton, St. Mary's Hospital; T. W. S. Hills, Cambridge and St. Mary's Hospital; L. H. Lewis, Middlesex Hospital; P. A. Pettavel, Lausanne; C. H. Pring, Westminster Hospital; F. J. Turner, Guy's Hospital; and A. Williamson, Royal Free Hospital.

Midwifery.—A. A. Angelis, Athens; P. A. Hendley, King's College and St. Mary's Hospitals; F. W. Riggs, St. George's Hospital; C. Kellgren, Royal Free Hospital; W. G. Kinton, Manchester; and D. A. Stepney, Royal Free Hospital.

The diploma of the society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: W. C. P. Bremner, F. G. H. Cooke, H. N. Collier, E. H. Drinkwater, J. Ewing, D. R. T. Griffiths, A. E. Henton, W. Miles, and F. J. Turner.

A MEMORIAL WINDOW TO THE LATE MR. T. SMALLHORN.—On July 10th a stained-glass window which has been inserted in Eynsham parish church, Oxford, to the memory of the late Mr. Smallhorn, was unveiled and dedicated. The central figure in the window is that of Christ on the Cross, with St. Mary and St. John on either side at the foot. The four top lights are filled with the figures of St. Leonard (the patron saint of the church), St. Stephen (the first martyr), St. Alban (the first British martyr), and St. Augustine (the first Archbishop of Canterbury). At the bottom of the window two angels bear a scroll with the inscription: "To the glory of God, and in loving memory of Thomas Smallhorn, for 37 years medical practitioner of this district, who died February 9th, 1902, aged 63, this

window is affectionately dedicated by his grateful patients and friends."

MEDICAL MAGISTRATE.—The Lord Chancellor has added the name of Dr. G. S. Stephenson to the commission of the peace for the borough of Grimsby.

THE CENTRAL MIDWIVES' BOARD.—Offices have been taken for the Board at No. 6, Suffolk-street, Pall Mall, and will be ready for occupation early next month.

BRISTOL LIFE-BOAT SATURDAY FUND.—July 11th was observed in Bristol as "Life-Boat Saturday," when the sum of £252 was raised by street collections in aid of the fund, being an increase of about £20 as compared with the preceding year.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The Barker Anatomical Prize (1903) of 30 guineas, open to all medical students in the United Kingdom, has been this year awarded to Mr. Alfred Norman Crawford, a student of the Royal College of Surgeons, Dublin.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.—At a meeting of the governing board of the School of Medicine of the Royal Colleges, Edinburgh, the secretary, Mr. R. N. Ramsay, reported that the number of students attending the school during the winter session 1902-03 was 1244 and during the summer session 1903 the number was 1080.

GREAT EASTERN RAILWAY: AUGUST BANK HOLIDAY ON THE CONTINENT.—For the convenience of holiday-makers on the Continent cheap tickets will be issued to Brussels available for eight days *viâ* Harwich and Antwerp. Passengers leaving London in the evening reach Brussels next morning. For visiting the Hague, Amsterdam, and other parts of Holland, the Rhine, North and South Germany, and Bâle for Switzerland, special facilities are offered *viâ* the Great Eastern Railway Company's Royal British mail Harwich-Hook of Holland route, through carriages and restaurant cars being run to Berlin, Cologne, and Bâle. The General Steam Navigation Company's fast passenger steamers will leave Harwich for Hamburg on July 29th and August 1st, returning on August 2nd and 5th. The United Steamship Company of Copenhagen steamers will leave Harwich for Esbjerg (on the west coast of Denmark) as usual.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON).—The prizes and certificates were distributed to the successful candidates of the Medical College of the London Hospital on July 20th. The distribution was made by Mr. W. Douro Hoare, chairman of the College Board, in the large library of the Medical College. The following is a list of the scholarships and prizes awarded: Prize scholarship in science, £120, Mr. R. C. Roberts. Prize scholarship in anatomy and physiology, £60, Mr. J. T. Macnab. Entrance science scholarships: £60 scholarship, Mr. S. J. A. Beale; £35 scholarship, Mr. H. L. Morgan; honorary certificate, Mr. H. R. Davies. Buxton scholarships in arts: £30 scholarship, Mr. P. I. Watkin; £20 scholarship, Mr. W. W. Wood. Epsom scholarship for students of Epsom College, Mr. G. E. Neligan. Clinical medicine: £20 scholarship, Mr. H. T. Thompson; honorary certificates, Mr. F. S. Kidd and Mr. J. M. Stenhouse. Clinical surgery: £20 scholarship, Mr. E. Gardner and Mr. H. W. Kaye, equal; honorary certificate, Mr. H. T. Thompson. Clinical obstetrics: £20 scholarship, Mr. S. M. Mackenzie; honorary certificates, Mr. T. D. Smith and Mr. E. Gardner. Duckworth Nelson prize (biennial £10), Mr. F. S. Kidd and Mr. H. T. Thompson, equal; honorary certificate, Mr. A. Le Rossignol. Senior Letheby prize (£20), Mr. H. Gooch; honorary certificates, Mr. H. F. Warner and Mr. E. H. Harries. Junior Letheby prize (£10), Mr. T. H. C. Benians; honorary certificates, Mr. R. C. Roberts and Mr. C. E. Zundel. Sutton scholarship (£20), Mr. H. T. Thompson; honorary certificate, Mr. M. Greenwood. Anatomy and physiology: scholarship (£25), Mr. J. E. E. Adler; honorary certificate, Mr. W. R. M. Turtle. Anatomy and biology: £20 scholarship, Mr. R. C. Roberts; honorary certificate, Mr. H. L. Morgan. Minor surgery: £15 prize, Mr. J. L. Meynell; £10 prize, Mr. B. R. Billing; £5 prizes, Mr. C. C. Morell, Mr. A. H. Burnett, and Mr. D. A. Chamberlain. Practical anatomy: £6 prize, Mr. E. L. Sandiland; £4 prize, Mr. H. R. Davies; honorary certificates, Mr. S. J. A. Beale, Mr. F. Standish, and Mr. P. I. Watkin. Anderson prizes: first prizes, Mr. J. E. Dunbar, Mr. H. A. Barnes, and Mr. E. Ward; second prizes, Mr. P. H. Adams, Mr. W. Lowe, and Mr. H. L. Tidy; honorary certificate, Mr. R. Milne.

ASSAULTING A LUNATIC.—At the Exeter police-court on July 14th a late attendant at the Devon Asylum was fined £3 12*s.* including costs for assaulting a lunatic patient. The medical superintendent stated that whilst visiting the wards on May 27th and looking through a glass door he saw the defendant strike a patient with his fist a severe blow over the ribs. He thereupon took the man's keys and ordered him to leave the asylum within an hour. The visiting committee thought that as the man had been summarily dismissed and had lost three weeks' wages, and as it was his first offence, it would not prosecute, but the Commissioners in Lunacy ordered the prosecution to be undertaken.

GAMBLING AT HEALTH RESORTS.—Dr. Cafferata of Spa has written to us expressing his wish that his medical colleagues in this country should understand that gambling having been done away with in Belgium visitors to Spa will not meet the undesirable company which formerly frequented the place. We are not certain that a health resort gains much in popularity by the closing of gambling tables; we are not even prepared to say that the occasional risking of an unimportant stake is not an amusing break in the invalid's rather monotonous routine; but the evils of gambling being what they are, we are bound to congratulate Spa upon its reformed character and to call the attention of our readers to the point. The patronage of Spa and other Belgian places of health and pleasure resorts by English visitors has, we understand, largely increased since the gambling-tables were closed.

THE OXYGEN HOSPITAL.—H.R.H. Princess Louise, Duchess of Argyll, accompanied by the Duke of Argyll, attended the seventh annual meeting of the supporters of the Oxygen Hospital, Fitzroy-square, London, W., which was held at the hospital on July 14th. The report stated that during the past year 88 cases had been treated in the hospital; of these 50 were discharged cured and 13 were greatly relieved, including nine cases of consumption in all of which the disease was arrested. 19 patients remained in the hospital. The chairman (Mr. Burdett-Coutts, M.P.) said that in considering the form and amount of relief given it had to be borne in mind that the worst and most incurable cases were always sent to them. With regard to the experimental side of the institution, a commencement was made with ulcers and open wounds, then lupus, and afterwards consumption were dealt with. Each stage had been marked by definite progress. They had seen the healthy skin advancing inch by inch over those terrible areas of ulcer and patients upon whose faces the human eye could hardly bear to look had left the hospital with scarcely a scar upon them. In consumptive patients the tubercle bacilli had disappeared and their temperature had been lowered. The result of putting into effect the recommendation of the Duke of Argyll that the cubicle system proposed by Mr. G. Stoker should be tried had been a distinct advance in the treatment of consumption and justified the committee in pleading for more funds to extend that system. The Archdeacon of Westminster moved the adoption of the report which was seconded by Dr. W. Ewart and carried unanimously.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JULY 15TH.

Local Government Board Medical Inspectors.

Mr. WEIR asked the President of the Local Government Board whether he would state where the rules relating to the conduct of medical inspectors under the Local Government Board were laid down; and whether he would say these inspectors had power to threaten vaccination officers with dismissal.—Mr. LONG replied: The medical inspectors in my department visit different parts of the country and carry out the particular directions given to them. There are no fixed rules on the subject to which I could refer the hon. Member. As regards the last part of the question, the inspectors report to me as to the manner in which the vaccination officers carry out the duties of their offices and in certain cases where it is found that important duties are wilfully neglected they have been instructed to point out to the officers that similar neglect has been considered by the department a reason for requiring the resignation of the officers concerned.

Commission on Physical Training.

Mr. PAIKESLEY asked the First Lord of the Treasury whether, in view

of the report of the Royal Commission on Physical Training in Scotland, His Majesty's Government would consider the desirability of appointing a similar Commission for England and Wales or take steps to introduce into all national elementary schools a system of scientific physical training.—Mr. BALFOUR replied: This question is engaging the attention of the Government but the particular form which an inquiry should take is one which cannot be determined without further consideration. I may refer the hon. Member to statements made on this subject by the Secretary to the Board of Education in this House and by the Lord President of the Council in another place.

THURSDAY, JULY 16TH.

Outbreaks of Measles and Whooping-cough.

Sir JOHN GORST asked the President of the Local Government Board whether his attention had been called to recent outbreaks of measles and whooping-cough, and excessive mortality from other causes, amongst the children of the Norwood Poor-law schools, and to a report made on this subject by Dr. J. Priestley, the medical officer of health of Lambeth, in which the aggregation of children was condemned; whether any additional expenditure on the schools by the Lambeth board of guardians had been sanctioned by the Local Government Board, and to what amount; and whether Dr. Priestley's report could be published as a Parliamentary paper.—Mr. LONG replied: My attention has been called to this matter and I have seen the report made by Dr. Priestley. I have been in communication with the guardians on the subject. A committee appointed by them has been investigating the matter and I am now expecting their final report. On receipt of it I shall consider what action it may be necessary to take. I informed my right honourable friend, in reply to a question by him on June 29th last, of the expenditure which had been sanctioned in connexion with these schools. No further expenditure has been sanctioned by me. I do not think that Dr. Priestley's report should be issued as a Parliamentary paper at the present time.

Vivisection.

Dr. J. G. SHIPMAN asked the Home Secretary how many experiments under Certificate C (Cruelty to Animals Act, 1876) had been witnessed by an inspector during the whole or part of the time of the experiment.—Mr. AKERS-DOUGLAS replied: No experiments under Certificate C (which relates to experiments under anæsthetics in illustration of lectures) were reported to me as having been witnessed by an inspector in the year 1902.

Dr. SHIPMAN asked the Home Secretary whether he would state in how many instances since he had been in office the conditions of the licence issued under the Cruelty to Animals Act, 1876, had been violated; and whether any, and, if so, what, steps had been taken to enforce the penal clauses of the said Act in any such instances.—Mr. AKERS-DOUGLAS replied: I am not aware of any such instances other than the four mentioned in the last annual report under the Act. All these were trifling departures, by inadvertence, from the strict letter of the law and did not call for criminal proceedings.

Dr. SHIPMAN asked the Home Secretary on what authority it was stated by the inspector in the return (Cruelty to Animals Act, 1876) just issued that only four irregularities had occurred during the course of the year.—Mr. AKERS-DOUGLAS replied: The statement is made on the authority of the inspector as the result of his visits and his constant communication with the licence-holders.

TUESDAY, JULY 21ST.

Pollution of a Scotch River.

Mr. EUGENE WASON asked the Lord Advocate whether he would instruct the Local Government (Scotland) Board, which is at present inquiring into the pollution of the River Ore in Fifeshire which gave rise to an epidemic of typhoid fever in that district, to make inquiry into the pollution of the Black Devon which is the main source of water-supply for the county of Clackmannan.—The LORD ADVOCATE: The suggestion of the hon. Member that inquiries should be made into the condition of the Black Devon will receive the careful consideration of the Secretary for Scotland.

Plague at Hong-Kong.

Mr. WEIR asked the Secretary of State for the Colonies whether he was aware that under an order of the Governor of Hong-Kong Chinese plague patients are allowed to remain in their homes for treatment; and seeing that this practice is opposed by medical opinion in the colony whether he would, in view of the increase in plague, have the order reconsidered with a view to the removal of all plague patients to isolation hospitals.—Mr. CHAMBERLAIN: I understand that the Hong-Kong Government is making an experiment allowing plague patients to be treated in isolation in their own homes instead of compelling them in all cases to be removed to hospital. The experiment is being tried because it is believed that many patients, owing to the great dislike of hospital treatment, have concealed their state of health until it was too late for them to be cured. The results of the experiment will be carefully watched.

WEDNESDAY, JULY 22ND.

Small-pox.

Colonel SADLER asked the President of the Local Government Board whether he would favourably consider the desirability of making an order for preventing the spread of small-pox to the effect that all persons who have been exposed to the infection thereof should be isolated during the incubation period of the disease, or alternatively vaccinated or revaccinated; and further that it should be made an offence to withhold information or to give false information in respect to cases of small-pox.—Mr. LONG: I will consider the expediency of giving local authorities further powers in relation to these matters. But legislation would probably be necessary if the subject is to be dealt with satisfactorily.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

Lessons on Massage. By Margaret D. Palmer, Masseuse and Manager of the Massage Department of the London Hospital. Second edition. Price 7s. 6d. net.

A Short Manual of Analytical Chemistry. By John Muter, Ph.D., F.R.S.E., F.I.C., F.C.S., Analyst to the Metropolitan Asylums Board. Ninth edition. Price 6s. net.

Diseases of the Stomach. By Max Einhorn, M.D., Professor in Clinical Medicine at the New York Post Graduate Medical School and Hospital. Third revised edition. Price 14s. net.

BOYSEN, C., Hamburg.

Die Milch und ihre Bedeutung für Volkswirtschaft und Volksgesundheit. Dargestellt im Auftrage der Wissenschaftlichen Abteilung der Allgemeinen Ausstellung für Hygienische Milchversorgung, Hamburg, 1903.

FISCHER, GUSTAV, Jena.

Klinisches Jahrbuch. Elfter Band. Zweites Heft. Price not stated.

FRATELLI MARSALA, Angolo Via Parlamento, 56, Palermo.

Annali della Clinica delle Malattie Mentali e Nervose della R. Università di Palermo. Diretta dal Prof. Dr. Rosolino Colella. Volume II. 1900–1902. Price not stated.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Die Chemische Pathologie der Tuberculose. Herausgegeben von Dr. med. A. Ott, Berlin. Price M.14.

"KNOWLEDGE" OFFICE, 326, High Holborn, W.C.

Astronomy without a Telescope. By E. Walter Maunder, F.R.A.S. Price 5s. net.

The Complete Law in Nature Unveiled. By F. Warner Jones, C.E. Price 1s. 6d.

LAYTON, CHARLES AND EDWIN, 56, Farringdon-street, E.C.

Handy Newspaper List, 1903. Price 6d.

The Insurance Register, 1903. By Arthur Wyndham Tarn, F.I.A. Price 1s.

LEE AND NIGHTINGALE, 15, North John-street, Liverpool.

City of Liverpool. Handbook compiled for the Congress of the Royal Institute of Public Health, 1903. Issued by the Local Executive Committee. Edited by E. W. Hope, M.D., D.Sc., Honorary General Secretary of the Liverpool Congress. Price not stated.

LEHMANN, J. F., München.

Magenerweiterung, Motorische Insufficienz und Atonie des Magens. Von Hofrat Dr. Friedrich Crämer, nebst einem Anhang über Chirurgische Behandlung bei Magenerweiterung von Dr. med. Albert Krecke. Heft I. Price M.3.

LIVINGSTONE, E. AND S., 15, Teviot-place, Edinburgh.

Wheeler's Handbook of Medicine and Therapeutics. Second edition, revised and enlarged. By William R. Jack, B.Sc., M.D., F.F.P.S.G., Assistant to the Professor of Practice of Medicine, Glasgow University. Price 8s. net.

LONGMANS, GREEN AND CO., 39, Paternoster-row, E.C.

Elementary Bacteriology. By M. L. Dhingra, M.D., C.M. Edin., Diplomate in State Medicine, University of Cambridge. Price 3s. net.

MACMILLAN AND CO., LIMITED, London.

Life and Labour of the People in London. By Charles Booth, assisted by Jesse Argyle, Ernest Aves, George E. Arkell, Arthur L. Baxter, and George H. Duckworth. Final volume. Notes on Social Influences and Conclusions. Price 5s. net.

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MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Entre Aveugles. Conseils à l'Usage des Personnes qui viennent de Perdre la Vue. Par le Dr. Emile Javal, Directeur Honoraire du Laboratoire d'Ophthalmologie de l'École des Hautes-Études. Price 2 francs 50.

NAUD, C., 3, Rue Racine, Paris.

La Nature Syphilitique et la Curabilité du Tabes et de la Paralysie Générale. Par L. E. Leredde. Price not stated.

NORSTEDT, P. A. och SÖNER, Stockholm.

Verhandlungen des Vierten Nordischen Kongresses für Innere Medizin zu Helsingfors D. 4–6 Juli, 1902. Herausgegeben vom Oberarzt Dir. Dr. H. Köster, Generalsekretär. Price not stated.

PENTLAND, YOUNG J., Edinburgh and London.

The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Edin., and Alexis Thomson, M.D., F.R.C.S. Edin. New Series. Vol. xiii. Price not stated.

REBMAN, LIMITED, 129, Shaftesbury-avenue, Cambridge-circus, W.C.

Some Practical Points in the Diagnosis and Treatment of Gonorrhœa in the Male. By H. Oppenheimer, M.D. Heidelberg, M.R.C.P. Lond. Price 1s. 6d. net.

Surgical Diseases of the Abdomen with Special Reference to Diagnosis. By Richard Douglas, M.D., formerly Professor of Gynecology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville. Price £1 10s. net.

Pregnancy, Labour, and Child-bed, with Ovarian Tumour. By R. G. McKerron, M.A., M.D., Physician to the Maternity Hospital, Aberdeen. Price 7s. 6d. net.

RICHARDSON AND CO., 25, Suffolk-street, Pall Mall East, S.W.

With the Army Service Corps in South Africa. By Sir Wodehouse Richardson, K.C.B., Colonel (late Army Service Corps), Deputy-Adjutant-General for Supplies and Transport in South Africa, 1899–1900. Price 2s. 6d. net.

RUDEVAL, F. R. DE, 4, Rue Antoine Dubois, Paris.

Essai sur la Psycho-Physiologie des Monstres Humains. Par N. Vaschide, Chef des Travaux du Laboratoire de Psychologie Expérimentale de l'École des Hautes-Études (Asile de Villejuif) et Cl. Vurpas, Interne des Asiles de la Seine (Asile de Villejuif) Suivi de l'Observation du Dr. Doyen sur le Xiphopage indien opéré Radica et Doodica. Price 5 francs.

SAUNDERS, W. B. AND CO., 9, Henrietta-street, Covent-garden, W.C.
Modern Materia Medica and Therapeutics. By A. A. Stevens, A.M., M.D., Lecturer on Physical Diagnosis in the University of Pennsylvania. Third edition, entirely rewritten. Price 16s. net.
The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois, and Eugene Wilson Caldwell, B.S., Director of the Edward N. Gibbs X-Ray Laboratory, University and Bellevue Hospital Medical College, New York. Price 21s. net.

SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton-street, Strand, W.C.
The Medical Attendance of Londoners By Sir Henry Burdett K.C.B. Price 1s.

SKIPPER (CHARLES) AND EAST, 49, Great Tower-street, E.C.
Statistical Tables of the Patients under Treatment in the Wards of St. Bartholomew's Hospital during 1902. By the Medical Registrars, H. Morley Fletcher, M.D. Cantab., F.R.C.P., and J. H. Drysdale, M.D. Cantab., F.R.C.P., and the Surgical Registrar, R. C. Bailey, M.S. Lond., F.R.C.S. Price not stated.

STUBER, A. (C. KABITZSCH), Würzburg.
Beitrage zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a.o. Professor an der Universität Heidelberg. Band I. Heft 3. Price M.4.50. Band I. Heft 4. Price M.4 50.

THE LAWRENCE PRESS, 110, Fifth-avenue, New York City.
Mechanical Vibratory Stimulation: Its Theory and Application in the Treatment of Disease. By Maurice F. Pilgrim, M.D., First Vice-President of the American Electro-Therapeutic Association. Price not stated.

THE WALTER SCOTT PUBLISHING CO., Ltd., London and Newcastle-on-Tyne.
Meta-Christianity: Spiritism Established, Religion Re-established, Science Disestablished. By H. Croft Hiller. Price not stated.

UNIVERSITY PRESS, Liverpool. (LONGMANS, GREEN, AND COMPANY, 39, Paternoster-row, E.C.)
Report of the Malaria Expedition to the Gambia, 1902, of the Liverpool School of Tropical Medicine and Medical Parasitology. By J. Everett Dutton, M.B., B.Ch. Vict., and an Appendix by F. V. Theobald, M.A. Price 10s. 6d. net.

UNIVERSITY TUTORIAL PRESS, 157, Drury-lane, W.C.
Matriculation Directory. No. XXXIV., June, 1903. Price 1s. net.

WHITTAKER AND CO., 2, White Hart-street, Paternoster-square, E.C.
The Apothecaries' Hall Manual. For Students preparing for the Dispenser's Certificate. By Mabel Thomson, Dispenser at the Clapham Dispensary for Women and at the Battersea Hospital. Price 2s. net.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Lectures on Massage and Electricity in the Treatment of Disease. By Thomas Stretch Dowse, M.D. Aberd., F.R.C.P. Edin. Fourth and revised edition. Price 7s. 6d. net.
A Pharmacopœia of Diseases of the Skin. Edited by James Startin, Senior Surgeon to the London Skin Hospital, Fitzroy-square. Price 2s. 6d.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BIGGAM, JOHN, M.D. Edin., has been re-appointed Medical Officer of Health to the Sedgley Urban District Council.

BUTLER, WILLIAM, M.B., C.M. Glasg., D.P.H. Lond., has been appointed Medical Officer of Health of Willesden.

GILL, J. W., D.P.H. Lond., has been appointed Surgeon and Agent for the care of Sick and Wounded Seamen and Marines at Llantwit Major by the Admiralty and Medical Officer to the Nash Lighthouse Establishment by the Elder Brethren, Trinity House.

GRIFFITH, A., M.D. Lond., has been re-appointed Medical Officer of Health for the Borough of Hove.

HAWTHORNE, C. O., M.D. Glasg., M.R.C.P. Lond., has been appointed Examiner in Medicine and Clinical Medicine in the University of Aberdeen.

MILLER, J., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Troops stationed at Exeter.

OSBORNE, A., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of the Ilfracombe District by the Barnstaple Board of Guardians.

PECK, HERBERT, M.D. Edin., has been re-appointed Medical Officer of Health to the Chesterfield Rural District Council.

RICHARDSON, ADAM, M.B., C.M. Edin., L.S.A. Lond., has been appointed Medical Officer of the Sengast District and Circle, North Natal, by the Indian Immigration Trust Board of the Natal Government.

VAN PRAAGH, HAROLD J., M.D. Lond., has been appointed Honorary Physician to the Bayswater Jewish Schools, Paddington, W.

WARD, J. P. S., M.R.C.S., L.R.C.P. Lond., has been appointed to the Medical Charge of Troops at Crownhill Barracks, near Plymouth.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAM HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, rising to £120, with board and apartments.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Male House Surgeon. Salary £80 per annum, with board and washing.

CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.—Professor of Anatomy. Salary £350 per annum.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Physician to in-patients. Also Clinical Assistant for three months.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Second House Physician for six months. Salary at rate of £30 per annum, with board, washing, and residence.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodgings, and washing.

COLCHESTER, EASTERN COUNTIES' ASYLUM FOR IDIOTS.—Resident Medical Attendant, unmarried. Salary £100 per annum, with apartments, board, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeon, unmarried. Salary £110 per annum, with board, lodging, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Junior Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

GATESHEAD UNION WORKHOUSE.—Assistant Resident Medical Officer. Salary £150 per annum, with apartments, rations, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried. Also House Surgeon, unmarried. Both for six months. Salary in each case £20, with board, and residence.

KENT AND CANTERBURY HOSPITAL—Second Honorary Physician.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

MALDON UNION.—Medical Officer and Public Vaccinator. Salary £65 a year, with fees and allowances.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80, with board, &c.

READING, ROYAL BERKSHIRE HOSPITAL.—House Physician, also House Surgeon, both for six months. Salary £80 per annum in each case, with board, lodging, and washing.

ROYAL LANCASTER INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

SALFORD UNION INFIRMARY, Hope, near Eccles.—Male Assistant Resident Medical Officer. Salary £130 per annum, with apartments and attendance.

SHEFFIELD, CITY OF.—Medical Officer of Health. Salary £700 per annum.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

SOMERSET AND BATH ASYLUM, Cotford, Taunton.—Assistant Medical Officer, unmarried. Salary £160 per annum, increasing to £200, with apartments, board, &c.

STOCKPORT INFIRMARY.—Assistant House and Visiting Surgeon. Salary £80 per annum, with board, washing, and residence. Also Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

SUSSEX COUNTY HOSPITAL.—Second House Surgeon and Anæsthetist, unmarried. Salary £70 per annum, with board, washing, and residence.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Surgical Registrar. Salary £50 per annum.

Births, Marriages, and Deaths.

BIRTHS.

GREGORY.—On July 21st, at Beverley, East Yorks, the wife of W. Herbert Gregory, M.D. Edin., of a son.

MURPHY.—On July 18th, at Cambridge-terrace, Dover, the wife of Charles E. Murphy, L.R.C.P., L.R.C.S. Irel., prematurely, of a son (stillborn).

MARRIAGES.

HARPER—SCOTT.—On July 16th, at St. Mary's Church, Wimbledon, by the Rev. Ronald C. Scrimgeour, M.A., vicar of Sibton, Suffolk, uncle of the bride, assisted by the Rev. J. Allen Bell, M.A., vicar of Wimbledon, Alexander Harper, M.D., of Eastbourne, son of James P. Harper, M.D., of Hertford-street, Mayfair, and West Norwood, to Constance Evelyn, daughter of Charles Scott, of Homefield-road, Wimbledon.

MACLEOD—MCWALTER.—At Rosehill, Falside, Paisley, on July 22nd, by Rev. Dr. Gentles, assisted by Rev. Robert Macleod, Aberdeen (father of the bridegroom), J. J. R. Macleod, M.B. Aberd., to Mary Watson, second daughter of the late Robert McWalter, Paisley. No cards.

WHITEHEAD—BROWN.—On July 15th, at St. George's Church, Tredegar, by the Rev. Talbot Whitehead, M.A., brother of the bridegroom, assisted by the Rev. Thos. Theophilus and the Rev. George Theophilus, M.A., Lionel Digby, fifth son of George Whitehead, Esq., J.P., Deighton Grove, York, to Edith Marian, only daughter of G. A. Brown, Esq., J.P., The Willows, Tredegar. At home, Llyswedog, Tredegar, August 13th, 14th, 15th.

DEATHS.

COOKSEY.—On July 19th, at his residence, The Lynches, Malvern, John Alexander Cooksey, M.R.C.S., M.R.C.P.E., aged 83 years.

GOADBY.—On July 20th, at Guthlaxton, Southern Hill, Reading, Milicent Janet, widow of Rev. J. Jackson Goadby, in her 67th year. No cards.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN EIGHTEENTH CENTURY OPERATION AS DESCRIBED BY THE PATIENT.

NOWADAYS, owing to the use of anæsthetics, a patient is unable to give any account of an operation, so we think that the following excerpts from the Egerton MSS. in the British Museum will prove of interest to our readers. The writer was Count William Bentinck and the letters were written to his mother the Countess of Portland.

Hague, Febr. ye 23, N.S., 1751.

I need not take any precaution for the operation I am to undergo. For my ordinary way of life is very sober. I have left off suppers entirely, except a little broath. ..... My wen is about as big as a hen's egg. When I first perceiv'd it in 1747 it was as bigg as a sparrow's egg. It is upon the right Buttock, placed so as not to have been troublesome hitherto neither in sitting nor in riding. As it is in the fat, the only pain will be opening the skin.

Hague, March ye 8th, N.S., 1751.

Charles let you know last post, Dear Madam, that the operation had been done, and had succeeded perfectly well. I have now the pleasure, as well for myself as for you, to let you know that I am as well as can be expected, perfectly quiet and calm, without any heat or feavour, and have slept very well, even the night after the operation, and ever since. The accounts I hear of the wound (for I cannot see it) are, that it looks very well. And I judge by what I feel, that it must be so, because I am free from pain and with a little art and contrivance, have found out how to lye easy in bed, and sit easy in my chair. Last Wensday observing the weather soft and mild, as Mr. Albinus had told me several months ago that he should chuse for the operation, and had for that reason refused ridding me sooner of this ugly lump, I writ to Leyden to desire him to come the Friday following, which day I had determined. He came about three. I immediately sent for a surgeon named Van Niel who is a very able man to help him. As soon as all their preparations were made, which I saw and examined (neither would I let 'em whisper together, but made 'em speak loud and in my presence), I stript as fast as I could, kneel'd upon my bed, drew the bolster, and the clothes under my body, and leant on my elbows: and as soon as I felt myself in a fit posture, told 'em to begin. In less than two minutes after, I heard Mr. Albinus say, *Cela est fait*, which gave me great pleasure, for the operation was very painful, and more so than I had expected. If it had been but a wen it would have gone much easyer. But it was a skirrus as hard as wood, and what must have grown to a cancer. The lump is somewhat bigger, and about half an inch thikker than one of Mr. Graham's watches, the glass comprehended. And the incision was made deep enough to be quite sure that nothing was left, which it is easy to see, because the whole hard lump cut out, is surrounded with fatt. At first it bled very little, but the bleeding begun afterwards, as was expected. And all precautions had been taken, and everything was in readiness to stop the hæmorragy, if it had been too abundant. But the blood stopp'd of it self, before twelve at night, notwithstanding which, I had all night a servant holding his hand on the wound, which is much easyer than a tight bandage. I have given you a very disagreeable detail, but thought you would like to have it from myself. I am, Dear Madam, yours for ever,

W. BENTINCK.

March ye 12, N.S., 1751.

The suppuration goes on very well. I forgot in my last to tell you that four-and-twenty hours before the operation I had eaten nothing but broath, and had been extraordinarily sober for some days. The diet I have observed ever since, is just enough not to suffer pain from hunger, and nothing, and my chief nourishment is thin chicken or veal broath, with bread, and boil'd chicken. I am sure that since last Thursday yesterday sennight, I have not eat two pound of bread, nor the value of one chicken in meat. I am persuaded it is this low Diet that keeps me so fresh and so well; and I intend to continue it to the end of the cure. ..... My head is as clear and as calm as I could wish. ..... I must make a present to Mr. Albinus who did the operation; and I am afraid he will not take mony of me, upon the foot we have long been upon together: I have thought a gold watch of Graham, with a second hand would be what he would like ..... .

W. BENTINCK.

Hague, March ye 16, N.S., 1751.

..... The wound, which I saw this morning for the first time, by the help of two looking-glasses, is very near as big as the palm of my hand, and the surgeon and I both agree that it cannot be wished that things may be better than they are. I reckon that it will be at least four weeks longer, before I shall be able to go out.

W. B

March ye 19.

..... I am, God be thanked, better than I ever could have expected in such a short time as a fortnight after such a severe operation as I have undergone ..... I sit down on a cushen hollow'd out in the middle, and get up, walk about the room, and read standing for several hours, without any the least pain. .....

To the Countess of Portland. W. B.

FILE-CUTTING BY HAND.

THE *Engineer* of July 17th publishes an analysis of the report of Mr. Chester Jones to the Home Secretary on the draft regulations proposed by the Secretary of State to be made for factories and workshops in which the process of file-cutting by hand is carried on. There are about 708 workshops in the United Kingdom to which the regulations apply. As mentioned in THE LANCET of July 11th, p. 109, the Earl of Stamford referred to the unwholesomeness of file-cutting in the inaugural address delivered by him at the Bradford Congress of the Sanitary Institute. The principal danger to the worker arises from the handling of the lead bed on which the file is cut and from inhaling the lead dust produced by the blows of the hammer in cutting the files and in brushing the files when cut. As the result of using the lead bed the file-cutter by hand is peculiarly liable to plumbism and to nervous and urinary diseases. Pulmonary tuberculosis is also a disease to which the file-cutter is subject considerably in excess of workers in most other trades. This seems to be due to the insanitary conditions under which he works acting on a system already enfeebled by the toxic effects of the lead.

THE IGNITION OF ETHER VAPOUR IN PRESENCE OF A CLOSED ELECTRIC LIGHT.

UNDER the above heading a description of a very unusual accident has been published by Dr. Dwight H. Murray of Syracuse, New York, in the *New York Medical Journal and Philadelphia Medical Journal* of June 27th. Of course it is well known that a mixture of ether vapour and atmospheric air is highly explosive, but an anæsthetist, considering that his electric light is contained in a sealed glass bulb, might be excused for overlooking the possibility of a spark being formed outside the latter when contact is made for the purpose of turning on the light. The following is part of the article in question:—

"On the 19th of January, while engaged in a tedious and difficult operation at one of the hospitals in the city, my attention was taken from my work by a sudden flash of light and some quick movements on the part of the anæsthetist, and I found that the ether vapour had ignited, scorching the hair and eyebrows of the patient, and had burned the skin on his forehead sufficiently to cause quite a marked redness. The anæsthetist reported that the patient being on the face he was unable to see the pupil properly and he had turned on the electric light in order that he might more readily note the reaction of the pupil. The blaze had resulted coincidently with the turning on of the light. There was no exposed fire or blaze in any part of the operating room and the only conclusion that we could arrive at was that the vapour of ether had ignited from the spark in the electric light burner made when contact took place in the turning on of the light. I have never seen reported or heard of any such accident taking place during the administration of ether, but the fact that it did occur shows that it can and may occur again. ..... Since this occurrence I have tried the experiment several different times in different ways with the same burner and others and have been unable to produce a blaze with ether vapour."

THE PATENTING OF SURGICAL INSTRUMENTS.

To the Editors of THE LANCET.

SIRS,—Will you kindly advise me in your columns on the following point? I have invented two new surgical apparatus and the maker wishes to patent them for his own benefit and for my protection—i.e., for the purpose of guarding against my ideas being copied without acknowledgment by other makers. Is there anything unethical in my name being associated with an article—a surgical instrument—which is patented? I am, Sirs, yours faithfully,

July 21st, 1903. MONA LISA.

*** There is no harm in patenting an instrument provided that our correspondent does not make direct pecuniary profit therefrom—i.e., he must take no royalties on the sales.—ED. L.

NASTY PRACTICES.

IN competing with the larger stores the small tradesman often sells many things which do not legitimately belong to his trade. There can be no serious objection to the milkman selling biscuits, sweets, and mineral waters, or to the grocer selling butter and bacon, but it is a nasty practice for the provision merchant to include among his wares paraffin oil or, conversely, for the oilman to sell tea. Sometimes a mixed trade results in really much more dangerous practices. For example, all classes of urban and suburban dwellers, as well as country folk now take a great interest in gardening with the result that there is much selling of artificial manures. Such things ought not to be sold by corn-chandlers, at any rate, without great care. In the window of a corn-chandler's shop we recently noticed number of bowls containing flours and meals intermixed with bowls containing raw guano, bone-meal, and nitrate of soda. In

retailing the bone-meal the practice is to take it out of its receptacle, which is kept uncovered in the shop by the side of other articles intended for the purposes of food, by means of a scoop and to pour it into a paper bag placed upon a scale-pan. After the manure is weighed the paper bag is forcibly dropped upon the counter several times in order that the meal may conform to the shape of the bag, which is then closed and handed to the customer. During these operations a quantity of bone-dust necessarily arises and ultimately settles upon goods which will presently be used as food. The same thing presumably takes place when guano is sold. Should the practice be allowed to spread we may have insecticides sold side by side with the flour and that which was intended for the aphis may find its way to the human stomach.

VARILAT STOCKINGS.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent Dr. A. C. Ingle, *re* Varilat lattice elastic stockings in THE LANCET of July 4th, p. 70, the address is the "Lattice" Elastic Stocking and "Mavette" Company, Huguenot Mansions, East Hill, London, S.W.

I am, Sirs, yours faithfully,

July 16th, 1903. ANNIE E. VALENTINE, Manageress.

THE LEARNED OPTICIAN.

THE following letter was received by a medical man from a jeweller and optician of scientific leanings. The patient had well-marked optic neuritis and was known to be suffering from cerebral tumour. We have substituted A, B, C, D for the actual names:—

WHOLESALE JEWELLER AND WATCH FACTOR.
MANUFACTURERS' AGENT, FRENCH AND OPTICAL GOODS.
16th June, 1903.

DEAR Dr. A.,—Mrs. B brought her daughter for spectacles last Saturday and I examined her eyes on Monday and find them in a very bad way. Vision R. and L. $\frac{6}{9}$ metres. Right fundus almost obliterated by œdema of the retinal tissues. The disc (well marked, physiological cup) margins lost with swelling of the connective fibres. Vessels very tortuous and three of them, veins, apparently pointed with pigment. Left fundus. Great pallor. Cherry-red spot between macula and disc, vessels lost except at equator, disc centre, and edges of field. I suspect embolism of the central artery or partial embolism. White striated patches radiating from macula characteristic of advanced albuminuræ. I asked the mother to obtain a sample of urin and herewith give you the following rough analysis. Large qty of epithelium (this I should have filtered off but time would not admit). *If* albumen was present, it was disguised by the epithelium or only a trace by the wet process. Slightly acid, although traces of the triple phosphates, excess of bile. Microscopic exam. Tube casts with raggy edges. ? able. A few granular corpuscles and bacilli of the putrefactive type. The prognosis you may judge: but I think grave. I myself would not advise her, but said I would communicate to you. The mother also brought a sample of medicine which I tested. *Simple solution of KI.* Don't you think that playing with it? My colleague Dr. C. (our chief analyst) thought so and said that a good solution of iron and iodine or KI. spts. ammonia, et ext. cinchona, and gentian, but it is not my business, only I have fulfilled my obligation. I am, Yours, &c.,

D.

P.S.—Last night I told the mother that if I were her I would get Easton's syrup pill which contains $\frac{1}{60}$ gr. of stry. (as the girl cannot take her food), which is also a specific for the nerve fibres. Tumour of the brain gives the L. eye characteristics.

UNVACCINATED LEICESTER.

DURING the quarter ending June 30th last the Leicester sanitary committee received the following certificates of infectious disease; small-pox, 220; scarlet fever, 123; diphtheria, 55; erysipelas, 47; consumption, 24; typhoid fever, 10; and puerperal fever, 4; total, 483.

THE STRAND IMPROVEMENT.

IN common with many other journals we have received a copy of the memorial of the executive committee of the Further Strand Improvement Committee addressed to the London County Council and pressing upon that body the advisability of making certain modifications in its adopted plans. No one who looks at the map which accompanies the memorial can doubt that the Further Strand Improvement Committee has hit upon a real flaw in the scheme for improvement of the district now proceeding. As very old residents in the neighbourhood we in this office are intimately concerned that the amended Strand should be a fine and beautiful as well as a convenient thoroughfare. The memorialists propose to cut off the eastern horn of the large crescent of buildings that will be bounded north and south by Aldwych and the new Strand respectively, thereby broadening the street between St. Clement's church and St. Mary's church and bringing St. Mary's church into alignment with the centre of the thoroughfare, which will also aim at the front of St. Clement's church and not at the south side of it as it now does. We see that the London County Council will lose a certain amount, a very small amount, of frontage by conforming to the wishes of the memorialists and we are certain that the æsthetic gain is worth the sacrifice. No eye can fail to be struck with the awkwardness of the present scheme, whereby St. Mary's church is not in the middle of the thoroughfare and St. Clement's church slants across it. An irregularity that is due to the transitions of time is always pardonable and generally picturesque, but an asymmetry that is planned as a new arrangement always appears eccentric and is seldom beautiful.

A STORY OF THE EARLY PART OF THE NINETEENTH CENTURY.

A LAY correspondent sends us the following:—

Country people, who are unusually plain in notion and straightforward in conduct, frequently committed the care of their health in the past to every odd sort of practitioners. A celebrated empiric in Yorkshire, called the Whitworth doctor, was of so great fame as to have the honour of attending the brother of Lord Thurlow. The name of this "doctor" was Taylor; he and his brother were farriers by profession, and to the last, if both a two-legged and a four-legged patient were presented at the same time, the "doctor" always preferred the four-legged one. Their *clientèle* was immense, as may be well imagined from the orders they gave the druggist; they dealt principally with Ewbank and Wallis of York, and a ton of Glauber's salt, with other articles in proportion, was their usual order. On a Sunday morning the doctors" used to bleed gratis. The patients, often to the number of a hundred, were seated on benches round a room, where troughs were placed to receive the blood. One of the "doctors" then went and tied up the arm of each patient and was immediately followed by the other who opened the vein. Such a scene is easier conceived than described. From their medical practice the nice formality of scales and weights was banished: all was "rule of thumb."

An example of their practice may elucidate their claim to celebrity. Being sent for to a patient who was in the last stage of consumption, the learned "doctor" prescribed *a leg of mutton* to be boiled, *secundum artem*, into very strong broth, a *quart* of which was to be taken at proper intervals. What might have been its success is not to be related as the patient died before the first dose was got down.

As *bone-setters* they were remarkably famous and, perhaps, to their *real merit* in this and the *cheapness* of their medicines they were indebted for their great local fame.

Much the same kind of fame is enjoyed now by quacks in various parts of the country as our pages frequently record. Credulity and ignorance still go hand in hand in national education, such as it is, has increased the practice of gross quackery, particularly because such papers as our nationally educated folk read, under the impulse of national education, are generally stuffed with the filthy advertisements of charlatans.

HOMES FOR EPILEPTICS.

To the Editors of THE LANCET.

SIRS,—Can any of your readers recommend a home where a youth, aged 19 years, suffering from epilepsy would be received on payment of 7*s.* or 8*s.* weekly. I am, Sirs, yours faithfully,

July 20th, 1903. M.D.

Alpha.—We think that the medical man to such a combination ought to receive at least £100 a year and the fee should be settled from this point of view; but it is exactly to decide questions of this kind that local medical unions are so valuable. The cost of living, rates of wages, ease and difficulty of transit, &c., are all factors in determining the proper fees, and these vary so much in different parts of England that we are unable to answer such questions in more than the most general terms.

Z writes: A medical man would feel obliged for suggestions for the administration of chloride of calcium in a case where the ordinary form is not tolerated. Does the hour of its administration make much difference?

R. N. M.—We do not know of any instance of arsenical poisoning from such a source having occurred.

M.R.C.S.'s address should be furnished: we cannot forward his letters.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received: *Evening Dispatch (Edinburgh), Glasgow Evening Times, Scotsman, Glasgow Herald, Morning Advertiser, Portsmouth Evening News, Hertfordshire Mercury, South London Press, Staffordshire Sentinel, Westminster Gazette, Windsor and Eton Express, Standard, Manchester Guardian, City Press, Birmingham Daily Mail, Yorkshire Mercury, Herts Advertiser, Reading Mercury, Mining Journal, Surrey Advertiser, Surrey Comet, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 23rd, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
July 17	29·55	S.W.	0·08	126	75	59	59	63	Cloudy
,, 18	29·59	N.	0·74	116	72	59	59	61	Overcast
,, 19	29·77	S.W.	0·60	91	64	58	58	60	Cloudy
,, 20	29·97	N.E.	0·03	77	63	57	57	59	Overcast
,, 21	30·10	S.W.	...	116	73	56	57	60	Cloudy
,, 22	29·86	S.W.	...	119	73	60	62	66	Raining
,, 23	29·74	S.W.	...	96	69	62	61	66	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

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VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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